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9 FEB 1988

Environmental Engineering Division

Mr. Connally Mears  
U.S. Environmental Protection Agency  
Region VIII  
One Denver Place  
Suite 500  
999-18th Street  
Denver, Colorado 80202-2405

Dear Mr. Mears:

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This letter serves to advise you of the Army's finalization of the Basin F Interim Response Action Decision Document on January 29, 1988. The proposed final design decision document that was signed by Colonel Wallace N. Quintrell on January 22, 1988 and delivered to you on January 26, 1988 shall serve as the final version, since no dispute was raised, with the addition of the enclosed Interim Response Action Deadlines.

To recapitulate, the most significant change from the proposed decision document was the Army's determination to double line the North Evaporation Pond in response to comments received from Region VIII of the U. S. Environmental Protection Agency and Citizens Against Contamination. Although the Army continues to believe that alternative design and operation practices, together with locational characteristics, make a double liner unnecessary in these circumstances, the Army elected to incorporate a double liner here because it was technically feasible and could be implemented without significant delay or an unreasonable increase in cost. We are currently examining possible future uses of the pond after its one year projected life. Of course your organization will be fully involved in any decision relative to the pond's use.

While technical comments were responded to at the time of issuance of the proposed final design decision document, enclosed is the Army response to the comments on the Applicable or Relevant and Appropriate Regulations.

The administrative record for the Basin F Interim Response Action shall be open for public inspection beginning on February 10, 1988 at the Public Document Facility at the Rocky Mountain Arsenal.

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| 13. ABSTRACT (Maximum 200 words)<br><br>THE OBJECTIVES OF THE INTERIM RESPONSE ACTION FOR BASIN F ARE TO:<br>1. PREVENT AND ELIMINATE THE EMISSIONS OF VOLATILE CHEMICALS FROM BASIN F<br>2. PREVENT POTENTIAL INFILTRATION OF BASIN F CONTAMINATED LIQUIDS TO GROUND WATER<br>3. ELIMINATE POTENTIAL ADVERSE IMPACTS TO WILDLIFE.<br>THIS PROPOSED DECISION DOCUMENT PROVIDES SUMMARIES OF:<br>1. ALTERNATIVE TECHNOLOGIES CONSIDERED<br>2. SIGNIFICANT EVENTS LEADING TO THE AWARDED OF THE IRA CONTRACT<br>3. THE IRA PROJECT<br>4. THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS),<br>STANDARDS, CRITERIA, OR LIMITATIONS ASSOCIATED WITH THE PROGRAM.  |   |  |   |                                  |
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Judicial review of the Basin F Interim Response Action may be obtained by filing an appropriate motion with the United States District Court for the District of Colorado not later than 30 days after the January 29, 1988 finalization of the Basin F Decision Document, i.e., on February 29, 1988.

Sincerely,

~~Original Signed By:~~  
Wallace N. Quintrell  
Colonel, Ordnance Corps  
Program Manager,  
Rocky Mountain Arsenal

Enclosures

Copies Furnished:

Department of the Army, Office of the Judge Advocate General, Attention:  
Lieutenant Colonel Scott Isaacson, Washington, D.C. 20310-2200  
Mr. David Anderson, Department of Justice, Environmental Enforcement  
Section, Land and Natural Resources Division, P.O. Box 7415, Benjamin  
Franklin Station, Washington, D.C. 20044-7415  
Mr. Rick Wilson, Corps of Engineers District, Omaha, 1612 U.S. Post  
Office and Courthouse, Omaha, Nebraska 68102-4978  
Office of the Program Manager for Rocky Mountain Arsenal Contamination  
Cleanup, Attention: AMXRM-PM/Mr. Ed Berry, Building 111, Commerce City,  
Colorado 80022-2180  
Mr. Jack Pantleo, D.P. Associates, Inc., P.O. Box 177, Commerce City,  
Colorado 80022-0177  
Ms. Dana Scott, D.P. Associates, Inc., P.O. Box 213, Gunpowder Branch,  
Aberdeen Proving Ground, Maryland 21010

DRAFT FINAL DECISION DOCUMENT  
FOR THE INTERIM ACTION OF BASIN F  
HAZARDOUS WASTE CLEANUP  
ROCKY MOUNTAIN ARSENAL

## 1.0 INTRODUCTION

The Interim Action of Basin F Hazardous Waste Cleanup project at the Rocky Mountain Arsenal (RMA) is being conducted pursuant to the Interim Response Action Process for RMA as set forth in the report to the U.S. District Court for the District of Colorado on June 5, 1987. The interim action project will include the transfer of contaminated liquids from the basin to temporary storage tanks, a run on/run off control system, the absorption of residual contaminated liquids/sludges, and the transfer of the absorbed material, underlying soils to a temporary waste storage pile and recontouring and capping of the Basin F area. The temporary facilities will provide proper storage of the contaminated materials prior to final treatment and/or disposal, which will be conducted as part of the overall remediation of RMA.

This decision document provides a summary of the alternatives considered, a chronological listing of the significant events leading to the award of the Interim Action Project and a brief summary of the Interim Action for Basin F. Accompanying this document is a document that identifies the applicable or relevant and appropriate federal or state requirements, standards, criteria, or limitations (ARARs) for the Basin F Interim Action. Also included are comments received during the public comment period and responses to those comments. Comments not responded to have been incorporated directly in the text.

## 2.0 HISTORY OF BASIN F

Basin F was built in 1956 to ensure environmentally safe solar evaporative disposal of contaminated aqueous wastes generated in the course of Army and lessee chemical manufacturing and processing activities at RMA. To prevent the seepage of ponded wastes through bottom sediments into the underlying groundwater, the Basin was sealed with a catalytically blown asphalt membrane. This membrane was covered with a protective earthen blanket. When finished, the Basin had a maximum holding capacity of 243 million gallons and covered a surface area of 92.7 acres.

Basin F remained in active service until December 1981. After August 1957, Basin F was the only solar evaporative disposal facility in use at RMA. In 1962 and 1963, the Basin was used not only for evaporative disposal, but also for the settling of aqueous wastes prior to their treatment and injection into a deep disposal well. In 1964, the Army subdivided Basin F, creating a surge and settling Basin (F-1) to support deep well disposal operations which continued until 1966. A floating spray raft, installed on Basin F in 1961, was used intermittently until 1966 for the purpose of accelerating the evaporation of retained aqueous wastes. In 1982, following the termination of Basin F as an active facility, the Army removed the underground connecting sewer lines and erected a dike around the existing fluid contents of the Basin in order to prevent further accumulations from sewer line discharges and surface run-off. Pump-fed trickler lines, operational today, were installed to enhance the evaporation of the remaining fluids. Presently, several million gallons of residual fluid remains in Basin F.



Basin F's potential influence on air quality includes wind blown contaminated particulates from the dry portions of the Basin and volatile emissions. In 1981, the U.S. Army Environmental Hygiene Agency (USAEHA, 1981) collected particulate samples as part of a study to evaluate the potential health hazards associated with fugitive dust migration from dry disposal basins at RMA. The results of the study indicated that the concentrations of contaminants detected in the fugitive dust did not pose a significant health hazard to the general population around RMA or to individuals working at RMA.

A study of the impact of volatile organic emissions from Basin F was conducted by the U.S. Army Environmental Hygiene Agency in 1982 (USAEHA, 1982). This report concluded that any volatile emissions from Basin F do not pose a health threat to the general public or to the workers at RMA.

A number of studies have identified contaminants in the underlying groundwater in the vicinity of Basin F (RMA, 1977; RMA, 1978; Stollar and van der Leeden, 1981; ESE, 1986b). The results of these studies suggested that Basin F might be leaking and contributing to the contaminant plumes of diisopropylmethyl phosphonate, dicyclopentadiene, chloride, and dibromochloropropane. A 1978 report by the Geohydrology Division of RMA isolated four possible points of leakage in the Basin (RMA, 1978). A number of these possible points of leakage correlate with the locations of contaminant plumes characterized by Stollar and van der Leeden (1981). Nevertheless, the continuing insufficiency of pertinent data currently precludes any definitive determination of whether Basin F is a major source of groundwater contamination at RMA (ESE, 1986a).

Adverse impacts have been documented for species exposed to Basin F liquids and sediments (Reuter, 1964; Blair, 1965; Crane, 1965; Hiddeman, et al., 1965; Dugway Proving Ground, 1975; Mathei, et al., 1981), with waterfowl mortality being the primary problem. Studies conducted in 1965 established the toxicity of pesticide-contaminated sediments in Basin F and F-1 to migratory waterfowl and small mammals (Blair, 1965; Crane, 1965; Hiddeman, et al., 1965). These studies also determined that the fluids of Basin F and F-1 contained no constituents toxic to wildlife (Blair, 1965; Hiddeman, et al., 1965). The phenomenon of various species of water fowl in contact with Basin fluids experiencing a rapid wetting of their feathers that resulted in their losing body heat and the ability to float or to fly was initially attributed to the presence in Basin fluids of unknown degreasing or wetting agents (Blair, 1965; Hiddeman, et al., 1965). A subsequent study, conducted in 1975, identified detergents present in the Basin as one cause of this wetting action (Dugway Proving Ground, 1975). Scare devices were installed in Basin F in 1975 to keep wildlife away. These devices remain in operation today.

### 3.0 INTERIM ACTION OBJECTIVES

The objectives of the Interim Action of Basin F Hazardous Waste Cleanup project are:

- o To prevent potential infiltration of Basin F contaminated liquids to underlying groundwaters;
- o To eliminate potential adverse impacts to wildlife that comes in contact with the contaminated liquids, sludges, and soils contained in Basin F; and
- o To prevent and eliminate the emissions of volatile chemicals from Basin F.

#### 4.0 INTERIM ACTION ALTERNATIVES

The interim action alternatives considered by the U.S. Army for Basin F were presented to the U.S. Environmental Protection Agency (EPA), the Colorado Department of Health (CDH), and the general public in June 1986. Alternatives for dealing with Basin F liquids were evaluated separately from the alternatives for dealing with Basin F overburden, liner, and subsoils. The criteria used to evaluate the alternatives were:

- o The interim actions would not preclude any future remedial actions for a final remedy. This is important to ensure that any interim action taken at this time, even though beneficial, would not preclude a cost effective permanent solution from being implemented;
- o The interim action would be cost effective;
- o The interim action would be initiated at the earliest possible time, preferably during the summer (with any proposed construction activities implemented as soon as practicable following completion of any required design activities); and
- o Interim actions must be consistent with the litigation issues between Colorado, Shell Chemical Company (Shell), and the U.S. Government, and the applicable or relevant and appropriate regulatory requirements.

In a June 5, 1987 joint report to the court in United States v. Shell Oil Co., the United States (the Army and EPA), Shell and Colorado committed to the need for a Basin F Interim Response Action that was described as follows:

An interim action for the removal of contaminated liquids, sludges, and soils is currently ongoing and will continue. The parties agree that once the liquids are removed to temporary storage tanks (constructed by Shell pursuant to a contractual agreement with the Army), the contaminated sludges and soils remaining in the basin will be solidified as necessary and removed to a temporary holding area, where they will be properly stored prior to final treatment and disposal.

In early February 1988, the parties will lodge a proposed consent decree with the court in United States v. Shell Oil Co. that contains a similar provision.

Accordingly, with respect to this Interim Response Action, the typical alternatives analysis that is usually performed pursuant to CERCLA has been supplanted by these judicially enforceable documents. The following discussion of alternatives is therefore an abbreviated one in recognition of the advanced stage of the project and the fact that the fundamental decisions with respect to the need for and nature of the Basin F Interim Response Action are the product of a consensus reached months ago. Here, it is already settled that the Basin F Interim Response Action will consist of liquid removal to the storage tanks constructed by Shell, excavation and absorption of sludges and soils, and placement of the absorbed sludges and soils in a temporary waste containment facility.

#### 4.1 BASIN F LIQUIDS

Eight separate alternatives were evaluated for dealing with the estimated 3 to 4 million gallons of Basin F liquids, which consist of a supersaturated saline solution with an organic content. The alternatives were:

- o No Action  
The existing enhanced evaporation system in the basin would be operated to remove the liquid contents through solar evaporation.
- o In-Situ Absorption  
The free liquids in the basin would be absorbed in place with dry soils and/or kiln dust prior to disposal of the absorbed material in an approved manner;
- o On-site Storage  
The liquids from the basin would be removed from the basin and stored in existing tanks at RMA, new tanks to be placed near Basin F, or a new surface impoundment;
- o On-site Treatment by the Army  
Chemical or thermal treatment of liquids would be conducted using existing facilities on RMA as a potential precursor to final disposal;
- o On-site Treatment by a Vendor  
Mobile facilities would be brought to RMA to incinerate, solidify, or chemically treat the liquids;
- o Off-site Treatment/Disposal  
The liquids would be transported off-site to a Resource Conservation and Recovery Act (RCRA) permitted hazardous waste treatment and/or disposal facility;
- o Cover the Basin and Install a Groundwater Containment/Treatment System  
An impermeable cover, possibly an air inflated cover, would be placed over the basin and a groundwater containment and treatment system would be installed north of the basin to deal with any leachate. The cover would prevent adverse impacts to waterfowl and would eliminate potential health impacts from volatile emissions.

A thorough alternatives assessment was performed with the data available and resulted in the preliminary selection of the preferred alternative for the interim action of on-site storage of the liquids in existing or new tanks located on RMA. An analysis of the available tanks on RMA subsequently resulted in the decision to construct new tanks near Basin F with a total capacity of approximately 4 million gallons.

The constructed tanks satisfy the requirements described in the accompanying ARAR document. The removal and absorption of Basin F liquid shall also be carried out in accordance with the ARAR document.

4.2 BASIN F SOLIDS Four interim action alternatives were evaluated for the Basin F overburden material, liner, and subsoil. The alternatives were:

- o No Action
- o In-Situ Capping  
A clay or synthetic liner would be placed over the entire 93 acre basin to prevent further infiltration of precipitation;
- o Creation of a Waste Containment Facility Inside Basin F  
A centralized storage facility would be constructed in the Basin for the contaminated solids and would be capped and monitored as a waste pile during the interim period; and
- o Off-site Disposal  
All solid material would be transported offsite to a RCRA permitted hazardous waste disposal facility.

The alternatives assessment resulted in the preliminary selection of an interim containment facility to be constructed within the borders of Basin F. Although originally the facility was intended to be located on a 10 acre area where the existing liner is intact, the conceptual design was later modified to consist of a 16 acre facility with one synthetic membrane bottom liner. The stockpiled waste will be double capped with both synthetic and clay materials. A leachate collection system will be installed in the waste pile with any resultant leachate removed and pumped to a double-lined leachate surface impoundment. After all the solids have been removed and placed in the waste pile, the remaining portions of the Basin will be recontoured, covered with a clay cap, and revegetated awaiting a determination of the basin's final disposition as part of the on-going RI/FS program.

The removal of the solids associated with Basin F will be carried out in accordance with the requirements set forth in the accompanying ARAR document.

#### 5.0 Additional Technical Bases for Preferred Alternatives

As discussed above, consistent with the repeated communications between the Army, EPA, Shell and the State, the June 5, 1987 report to the court and the proposed consent decree, the Basin F Interim Response Action will consist of liquid removal to the storage tanks constructed by Shell, excavation and absorption of sludges and soils, and placement of the absorbed sludges and soils in a temporary waste containment facility.

The Technical details of each of these fundamental aspects of the Interim Action are, in turn, the product of repeated meetings and exchanges of detailed documents and correspondence between the Army, EPA, Shell and the State. In addition, these technical aspects of the Interim Action are dictated by the requirements in the accompanying ARAR document (which is incorporated by reference into this decision document), and by the comments received during the public comment period (with appropriate modifications being made to the Interim Action proposal.) (Copies of all such material may be found in the administrative record for the Basin F Interim Response Action that will be available for public inspection at the RMA Public Document Facility beginning in early February 1988.)

Once the decision was made to use on-site tanks for liquid storage it was determined shortly thereafter that new tanks would be constructed. This was based on the uncompatibility of existing on-site tanks with Basin F liquid. Construction of new tanks would allow for use of materials to insure compatibility and added protection for a 5 year life.

The NE corner of Section 26 was chosen for the location based on a number of criteria including: location in an uncontaminated area, at least 1000 feet away from a fault from the Holocene time, proximity to Basin F for short distance pumping or tracking of liquid, proximity to area designated for possible future maintenance shop, and central location for utilities. All these criteria are met by the NE corner of Section 26.

Three tanks were chosen with a total holding capacity of four million gallons (MG). Based on the need for operational flexibility the Army asked Shell to provide no fewer than two tanks and no more than four tanks to hold the 4 MG specified in the Memorandum of Understanding (MOU) between the Army and Shell. Shell made the decision to construct 3 tanks of 1.33 MG each. The 4 MG figure was chosen based on the volume of liquid present during the proposed time of year of liquid removal (August - September).

The decision as to method of liquid removal is being left up to the construction bidders to propose in the form of a performance specification in the Request for Proposal (RFP). The liquid removal will be accomplished by one of two methods: directly from the basin to tanks via pipeline or by vacuum trucks. The apparent advantages of the pipeline come from reduction of spill potential and less personnel involvement in the transfer. Vacuum trucks may allow for quicker removal.

There are a number of components associated with the on-site waste containment facility alternative.

- o The chosen area for the wastepile is the SW corner of Basin F. This area has shallow contamination associated with it and is in a dry section of the basin. The 16 acre size of the wastepile will give the volume needed to hold up to 605,000 cubic yards. It is estimated that 405,000 cubic yards will be placed in the wastepile. The residual volume is a contingency in case of any unexpected areas of contamination being found.

- o The excavation criteria being employed has been previously coordinated with EPA and the State. Depth of soil removal will be 6 inches throughout the basin and 6 feet where previous soil contamination studies has shown deep contamination or where apparent staining or black discoloration is found. The Engineering criteria has been chosen due to the lack of specific promulgated regulatory standards and the volume constraint of the wastepile. It is estimated that the excavation criteria will remove from the environment any high level contamination consistent with the interim nature of this project. Apparent staining and black discoloration have also been chosen as criteria because in the past this has been found in areas where asphalt liner's integrity is questionable. After all the solids have been removed and placed in the waste pile, the remaining portions of the Basin will be recontoured, covered with a clay cap, and revegetated awaiting a determination of the basin's final disposition as part of the on-going RI/FS program.

The wastepile itself will be constructed on a one foot prepared foundation, 1 foot cohesive soil layer, lined with a single synthetic liner and capped with a synthetic liner and one foot of clay. It is also designed with a leachate detection/collection system. This type of design will greatly reduce any chance of infiltration and leachate formation and subsequent leakage. Also aiding in the prevention of leachate formation is the absorption of any residual liquid and sludges prior to placement in the wastepile which also helps attain the consistency need for wastepile construction and traffic support. The use of "Class F" fly ash has been determined to be the best absorbant to use for Basin F material.

The remaining 77 acres of the basin will be recontoured and capped with clay and revegetated to match the surroundings. This will allow for natural drainage and prevent the formation of another lagoon containing contaminated liquid. Thus also minimizing the hazards to wildlife and prevents potential leaching of contaminants to the groundwater.

Inherent in the selection of this alternative is the need for two collection ponds. The first is the North Evaporation Pond. This will be a double lined pond used to collect runoff and decontamination water during the construction phase of the project. It is expected to contain low levels of contamination. The second is the Leachate Surface Impoundment. This will also be a double lined facility which will hold any leachate generated from the wastepile. These are both designed to preclude any leakage to underlying soils. After the project construction is completed these facilities along with surrounding wells will be continually monitored. Any liquids contained in the pond and lagoon after construction will be subsequently removed and properly disposed of.

#### 6.0 CHRONOLOGY OF EVENTS FOR THE BASIN F INTERIM ACTION PROJECT

The significant events with respect to the Army's Basin F interim action project are as follows:

June 24, 1986: At a public meeting called by CDH, the Army announces its proposed Basin F Interim Action Plan. EPA issues a statement that the Army's proposal is generally acceptable.

July 22 to September 22, 1986: The Office of the Program Manager for Rocky Mountain Arsenal Contamination Cleanup (PMRMA) initiates the Interim Action project in conjunction with the Omaha District, Corps of Engineers (COE).

September 26, 1986: The Department of the Army and Shell Oil Company sign the Memorandum of Understanding (MOU) pursuant to which Shell constructs new tanks with a 4 million gallon volume to hold Basin F liquids.

October 1 to November 11, 1986: Discussions between PMRMA and COE continues. COE selects an Architect-Engineering (A-E) firm for design of the Basin F Interim Action project.

November 12, 1986: The Army briefs EPA Region VIII, and Shell on the status of the Interim Action Project.

November 13, 1986: The Army briefs CDH on the status of the Interim Action Project.

December 9, 1986: COE awards the Delivery Order for design of the Basin F Interim Action to Woodward-Clyde Consultants. This was done after discussions with Shell, EPA, and CDH regarding scope and schedule.

December 9, 1986 to March 23, 1987: Design activities proceed from start to 60%.

March 25, 1987: A 60% design briefing is given to Shell, EPA, and CDH. Drawings are given to all parties at that time. The Army requests comments as soon as possible.

March 26 to May 13, 1987: After no comments are received, design activities proceed from 60% to 95%.

May 14, 1987: A 95% design briefing is given to Shell, EPA, and CDH. Final drawings are given out and comments are requested to be received within one week to allow for incorporation into the Request for Proposal (RFP).

May 15 to May 31, 1987: No comments are received and design to 100% and RFP reproduction takes place.

June 1, 1987: RFP is distributed to requesting bidders.

June 1 to August 7, 1987: A number of amendments are incorporated into the RFP. Proposals prepared by bidders.

June 10, 1987: The RFP is officially sent to Shell, EPA and CDH requesting any comments.

June 11, 1987: A pre-proposal conference is held at RMA for potential bidders. The conference consists of a project overview and site tour and a question and answer period. It becomes apparent from the conference that some modification and clarification is needed for various sections of the RFP.

June 15, 1987: Preliminary comments received by telephone from CDH.

July 2, 1987: Preliminary comments received by telephone from EPA.

July 15, 1987: Written comments are received from CDH.

July 16 to August 6, 1987: Proposal preparation by bidders continues.

August 7, 1987: All proposals are due by 4:00 p.m. Central Daylight Savings Time. Comments are received in writing from EPA and CDH.

August 10 to September 18, 1987: Evaluation Committee convenes in Omaha to evaluate all proposals.



August 24, 1987: EPA, Shell, and State are requested by the Army to identify ARARs for Basin F Interim Action.

September 24, 1987: The Basin F Interim Action contract is awarded to the Ebasco Team.

October 7, 1987: A protest of contract award is received by COE from one of the proposers on the RFP. All work on the Basin F Interim Action is stopped until the protest can be resolved. The resolution process could take up to 5 months.

October 30, 1987: Army requests comments from EPA, Shell, and CDH on the Army's preliminary draft of the ARAR document.

November 18, 1987: Preliminary ARAR comment period closes. Written comments received from Shell.

December 4, 1987: Army transmits draft decision document and Basin F Interim Action specifications to EPA, Shell, and CDH. Public comment period is announced in the media.

December 7, 1987: Public comment period on Basin F Interim Action commences. Decision document, ARAR document, Basin F Interim Action specifications and administrative record available to public at RMA Public Document Facility.

December 14, 1987: Public meeting on Basin F Interim Action held in vicinity of RMA.

January 8, 1988: Public comment period closed. Written comments were transmitted by the State, EPA and Shell respectively on January 7, 8 & 11, 1988.

January 25, 1988: Draft final decision document and ARAR document issued.

January 26, 1988: Army will direct its contractor to initiate work on the Basin F Interim Response Action in accordance with the terms of this decision document, except in the unlikely event that dispute resolution is invoked on or before January 28, 1988.

January 28, 1988: Period for invoking dispute resolution by EPA and Shell closes.

January 29, 1988: Army anticipates finalizing the Basin F Interim Response Action decision document.

January 29, 1988: Work on Basin F Interim Response Action is expected to commence.

## 7.0 SEQUENCE OF THE INTERIM ACTION PROJECT

The Interim Action of Basin F Hazardous Waste Cleanup project at RMA consists of transferring the Basin F liquids to storage tanks; construction of a lined waste storage pile, a double-lined leachate surface impoundment and a double lined north evaporation pond absorption of the Basin F solids to stabilize them; placement of the absorbed material into the waste pile; and final grading and capping of the excavated area. Figure 1 illustrates Basin F after project completion and identifies the major construction components of the project. The project is described in detail in project specifications (COE, 1987).

The project begins with site preparation, transfer of the Basin F liquids, and construction of the North Evaporation Pond. Site preparation includes construction of parking areas for support trailers, construction of access roads, installation of utilities and barrier fencing, construction of the decontamination facilities, and installation of temporary erosion and runoff control structures.

This is followed by preparation of the Basin, which entails construction of the waste pile bottom liner, installation of absorbent mixing equipment, and construction of the Leachate Surface Impoundment. Construction of the waste pile bottom consists of excavating the overburden, liner, and subsoils in the designated area; preparing the soil foundation; and installing the synthetic liner. The excavation depths will be 6 inches throughout the basin and 6 feet where current RI data shows deep contamination or where apparent staining or black discoloration is found. The Leachate Surface Impoundment is a double-lined basin for storage of any leachate that is collected at the bottom of the waste pile.

Waste removal operations will consist of waste excavation, waste absorption, and waste pile construction. The Waste Pile will be constructed as three subcells and will be capped with a synthetic liner and a clay cap as it is constructed. Run on/run off controls will be instituted to minimize the amount of water entering the Waste Pile.

Basin closure operations will consist of soil sampling, Waste Pile closure, and basin closure. Soil samples will be collected from the Basin after excavation of the basin material and will be submitted to the Corps of Engineers for contaminate analyses. Closure of the Waste Pile will include placing top soil over the pile, revegetating the top soil, installing the pile ventilation system, and activating the leachate collection system. Basin closure activities will include grading the basin, installing a clay cap over the excavated areas, placing top soil over the clay cap, revegetating the basin, and installation of permanent access roads and fences.

Monitoring activities and cap maintenance will continue throughout the project life until a final remedial solution is determined and implemented as part of the Army's on-going RI/FS Program.

APPROVED:



WALLACE N. QUINTRELL  
Colonel, Ordnance Corps  
Program Manager,  
Rocky Mountain Arsenal

DATE: January 22, 1988

## 8.0 REFERENCES

- Blair, Col J.R., Director of Medical Research, Chemical Research and Development Laboratories. 1965, February 24. Disposition Form Re: Toxicological Evaluation of Waters and Solids from Rocky Mountain Arsenal Waste Lakes F and F-1 to Director of Engineering and Industrial Services, Edgewood Arsenal. Microfilm RAA016, Frames 0084-0088.
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- RIC 85121R07  
Dugway Proving Ground. 1975, February. Interim Summary Report on Dugways Findings on the Causes of Waterfowl Mortalities in and Around Reservoir F at Rocky Mountain Arsenal.
- RIC 87014R23  
ESE (Environmental Science and Engineering, Inc.). 1986a, October. Draft Final Contamination Assessment Report, Source 26-6: Basin F. Prepared for U.S. Army Program Manager's Office for Rocky Mountain Arsenal Contamination Cleanup.
- RIC 86317R01.  
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RESPONSE TO COMMENTS ON THE  
Basin F Interim Response Action  
Decision Document

Comments from Shell Oil Company:

Comment No. 5 - Page 3, Section 3.0: The objectives should be listed in order of importance. If this were accomplished it is probable that the first objective would be listed last, if at all. Refer to the top of page 12 of the appendix for the statement that "the volatiles originally contained in Basin F liquid apparently have evaporated." Based on this statement, why is the first objective included?

Response: While it is true that the volatiles in Basin F have apparently evaporated, the data which supports this has been obtained only recently. At the time the Basin F Interim Action was conceived volatiles emanating from the Basin was thought to be a problem. In order to maintain a complete record the Army believes it should remain as an objective. The Army also believes it imperative that caution be exercised in regards to volatile emissions due to the uncertainty of release during the interim action.

Comment No. 14 - Page 12, bottom paragraph: Will final samples be collected from the area to be used for the waste pile? Will the results of this sampling of the basin be used to decide on additional excavation to some predetermined concentration horizon, and, if so, how will the numerical concentration limit be derived?

Response: Samples will be collected as part of the Basin F IRA construction contract. The results of the sampling and analysis will be used in determining the extent of excavation for the final cleanup, not the interim action. The interim action will still use the engineering criteria of 6" throughout the Basin and 6' where RI data shows deep contamination and where apparent staining or black discoloration is found.

Comment No. 12 - Page 10, last paragraph: It is not clear if the waste pile has a double or single liner. Does the soil foundation referenced perform the function of a second liner? Please clarify.

Response: In terms of regulations the soil foundation will not serve as a second liner thus making the waste facility single lined. While the soil foundation is not expected to have permeability of  $10^{-7}$  cm/sec., it will, however, be comprised of cohesive soils which act as a second liner to a certain extent.

RESPONSE TO COMMENTS ON THE  
BASIN F INTERIM RESPONSE ACTION  
DECISION DOCUMENT

Comments from Citizens Against Contamination:

Comment No. 2: Over \$21 million is an excessive amount of money for an interim action - we feel the money could be better spent by immediately beginning a permanent remedy.

Response: The Army agrees that \$21 million is a large amount to spend on an interim action. Army early cost estimates anticipated the project would entail the expenditure of approximately \$10 - 15 M. However, comments were solicited early in the process from the U.S. Environmental Protection Agency (EPA), the Colorado Department of Health (CDH), and Shell Oil Company. Consideration of these comments, together with responsible technical judgement, resulted in an expensive interim action, but one which the Army feels will provide protection of public health and the environment. Equally important and a significant contributor to the cost is the mandate to substantively meet Applicable or Relevant and Appropriate Federal and State Requirements (ARARs).

Using the \$21 million to immediately initiate a permanent remedy, would be in violation of applicable existing environmental laws, e.g. the National Contingency Plan (NCP) and the Comprehensive Environmental Resource Compensation and Liability Act (CERCLA).

Comment No. 3: This appears to be the beginning of a massive landfill - we hope this is not part of the permanent cleanup plan.

Response: As stated before, this is an interim measure. To begin the permanent remedy before the Remedial Investigation/Feasibility Study (RI/FS) is complete and the Record of Decision is approved by EPA would be in violation of the law as discussed to comment no. 2.

As part of the on-going Feasibility Study an alternatives assessment will be conducted which screens various remedial action alternatives. Although an onsite waste containment facility is an alternative being considered, no final selection has been made or will be made until the ROD is published.

Comment No. 4: A cleanup plan to take care of all the contamination in Basin F should be in process by now.



Response: A program to determine a permanent solution for Basin F is underway now. The on-going RI/FS is determining the levels and types of contamination found in Basin F, the action levels to assure sufficient soil is decontaminated and which technologies are feasible to treat and dispose of Basin F waste. The RI/FS is the central program on which the ROD is based. Once the ROD is approved by EPA, it becomes the foundation for the final cleanup plan.

Comment No. 5: The levels of contamination left in Basin F after this interim action should be measured.

Response: An extensive sampling and analysis program is included in the design specifications as awarded. Samples will be taken after excavation and prior to capping. The results of the analysis will be incorporated into the on-going RI/FS for use in determining a final cleanup plan.

Comment No. 6: More wildlife protection factors should be in place to avoid passing contamination offpost via wildlife.

Response: Currently security fencing and migratory waterfowl scare devices are in place to deter wildlife from contacting Basin F materials. Moreover after completion of the Basin F Interim Response Action, no Basin F waste will be exposed to the open environment. The waste containment facility will be capped with a synthetic liner and clay, the remaining area of the basin will be capped with clay, and the liquid will be stored in tanks. These measures will effectively preclude any wildlife from coming in contact with Basin F waste and subsequently passing it offpost.

RESPONSE TO COMMENTS ON THE  
BASIN F INTERIM RESPONSE ACTION  
DECISION DOCUMENT

Comments from EPA Region VIII

Paragraph 7 Comment: Cover letter to comments dated 8 Jan 88.  
EPA believes the North Evaporation Pond should be double-lined in accordance with 40 C.F.R. Section 264.221 (c) and Section 264.221 (d).

Response: As a result of further consideration and evaluation, this comment has been incorporate into the text of the decision document and will be modified in the design specifications.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET—SUITE 500

DENVER, COLORADO 80202-2405

JAN 0 8 1988

REF: 8HWM-SR

Colonel W. N. Quintrell  
Program Manager  
AMXRM-EE Department of the Army  
U.S. Army Toxic and Hazardous Materials Agency  
Building 4460  
Aberdeen Proving Ground, MD 21010-5401

Re: Rocky Mountain Arsenal (RMA),  
Comments on Decision Document for  
Basin F Interim Response Action (IRA)

Dear Colonel Quintrell:

We have reviewed the subject document dated December 2, 1987, which includes a description of the objectives, alternatives, and chronology of events, a proposed Applicable or Relevant and Appropriate Regulations (ARARs) determination, and the Request for Proposal. Enclosed are our specific comments on the Decision Document. We look forward to further discussions on the Decision Document. Revisions to the document will be necessary before EPA can provide its concurrence.

Our comments are based on the assumption that the proposed Consent Decree will become final with its current provisions. Sections of the proposed Decree address the various IRAs and the process to be followed if they are pursued. The proposed Decree is now under review by each party's management, and will also be the subject of a formal public review period. In the event that we determine changes to the Decree are appropriate following either of those review periods, further review and revision of the Decision Document may be necessary.

As you know, Basin F is the subject of pending litigation. In the event of a Court ruling that affects other assumptions concerning Basin F, further discussion and probably revision of our comments should be expected.

We continue to view the planned removal of Basin F liquids and sludges as among the highest priorities for the RMA cleanup. We wish to state for the record that we expect that the final cleanup of Basin F is certain to involve additional excavation of contaminated soils which now lie beneath the basin, as well as treatment of all the contamination; only then will final disposal be appropriate for consideration. Determination of final ARARs for that remedial action will be made in the Record of Decision at that time.

Of major concern to EPA is the lack of discussion within the Decision Document of the explanation and rationale for the selection of the chosen alternative for the Interim Action. While the Army provides an adequate

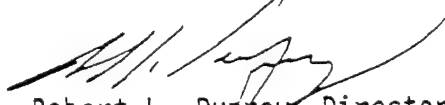
summary of the range of various alternatives which were considered and evaluated in selecting the Interim Action, very little discussion of the criteria and factors upon which the various alternatives were evaluated is presented. Further, there is no discussion of how each of the alternatives addressed or attained these criteria or factors. The Decision Document fails to compare the various alternatives and the document fails to provide any detail as to how the selected Interim Action was identified as based upon the evaluative comparison of the alternatives. In short, while we normally expect a decision record to include discussion of how the chosen alternative was selected over the other alternatives, the Basin F Decision Document does not provide that. Therefore, EPA requests further explanation of the above within the Decision Document.

Another major concern is over the positions taken in the proposed ARAR determination as part of the draft Decision Document. They will require that this portion of the document be revisited and revised before EPA's concurrence on the Decision Document can be given. Details of this major concern are provided in the enclosure.

As explained in the enclosed comments on the proposed ARAR determinations, 40 C.F.R. section 264.221(c) is, at the very least, relevant and appropriate for the evaporation pond portion of the interim action. EPA requests further discussion and additional information concerning the applicability of section 264.221(d) as it relates to the proposed single liner for that surface impoundment. However, we feel it would be very difficult to find a comparable alternative to the double liner required by section 264.221(c). Without such discussions and information, we are unable to accept that portion of the ARAR analysis and the proposed design.

Our contacts for the Basin F IRA are Mr. Michael Gaydosh at FTS 564-7009 for the draft ARAR determination and Mr. Connally Mears at FTS 564-1528 for other matters.

Sincerely yours,



Robert L. Dugrey, Director  
Hazardous Waste Management Division

enclosure

cc: Thomas P. Looby, CDH  
David Shelton, CDH  
Chris Hahn, Shell Oil Company  
R. D. Lundahl, Shell Oil Company  
Preston Chiaro, Ebasco  
Thomas Bick, Department of Justice  
David Anderson, Department of Justice

EPA COMMENTS ON SELECTION  
AND DETERMINATION OF IMPACT  
OF ARAR'S AS CONTAINED IN  
"DRAFT FINAL DECISION DOCUMENT  
FOR THE INTERIM ACTION OF  
BASIN F HAZARDOUS WASTE CLEANUP  
ROCKY MOUNTAIN ARSENAL"  
DECEMBER 2, 1987

While EPA generally supports the implementation of the Basin F interim action, EPA does have a number of major concerns and questions concerning the Army's initial ARAR selection and initial determinations of impact of ARAR's as contained in the draft final Basin F Interim Action Decision Document. These comments are provided to assist the Army in preparing a final Decision Document. EPA reserves the right to raise additional issues upon receipt and review of the Army's proposed final Decision Document for the Basin F Interim Action. Further, pursuant to agreement among the parties, EPA reserves the right to object to any portion of the final Basin F Interim Action Decision Document, including any ARAR analysis, through the dispute resolution process.

1) EPA has considerable concern regarding certain statements made at page 7 of the ARAR selection and determination portion of the Decision Document. The statement is:

"Since this interim action does not contemplate discharging any Basin F contaminants into the soils, groundwater, or surface water of the Arsenal, the provision of the Resource Conservation and Recovery Act ("RCRA"), the Safe Drinking Water Act, and the Clean Water Act (and any comparable State laws) are not applicable or relevant and appropriate for this ARAR category."

This statement is contained within the discussion of ambient or chemical-specific ARAR's for the Basin F interim action.

If the above statement is intended to mean that because the interim action will not result in any additional discharge of contaminants into the soils, groundwater, or surface water of the Arsenal (other than that which may or may not be currently occurring) and, therefore, ambient or chemical-specific ARAR's which may be contained in RCRA, the Safe Drinking Water Act, or the Clean Water Act will not be considered, the statement is patently overbroad. As set forth at page 3, 107 of EPA's Interim Guidance on Compliance With Other Applicable or Relevant and Appropriate Requirements (52 Fed. Reg. 32496), ambient or chemical-specific requirements may set protective levels for the chemicals of concern in the designated media or else indicate an acceptable level of discharge where one occurs in a response

activity. Therefore, regardless of whether there will be additional discharges or releases of contaminants as a result of this response action, provisions of RCRA, the Safe Drinking Water Act, and the Clean Water Act (and any other environmental law) may be applicable or relevant and appropriate. Indeed, when a Superfund response action is undertaken, and the response action is intended to address contamination found in soils, groundwater, or surface water, RCRA, the Safe Drinking Water Act, and Clean Water Act provisions must be reviewed and evaluated to determine if there are any relevant and appropriate or applicable ambient or chemical-specific requirements pertinent to the response action. Such laws, and their associated regulations, must be fully evaluated to determine if any of their requirements include ambient or chemical-specific levels which would be applicable or relevant and appropriate in determining levels of cleanup, in addition to acceptable levels of discharge resulting from the response action. Therefore, the rote dismissal of broad categories of ARAR's based upon a distinction that the response action does not "contemplate discharging" further contaminants is improper.

Again, if the intent of the statement at page 7 is that this interim action is not attempting to address soil, groundwater, or surface water contamination or remediation, it is also somewhat inaccurate. Clearly, this interim action is an attempt to at least partially respond to the possible release of contaminants into soil, groundwater, and surface water. (See Interim Action Objectives at page 3 of the Draft Final Decision Document.) Therefore, ARAR's contained within RCRA, the Safe Drinking Water Act, and the Clean Water Act (and, indeed, any other environmental law) must be evaluated in light of the fact that this response action addresses these various environmental media. While it is clear that this interim action does not constitute a final response action, pertinent ambient or chemical-specific ARAR's may be found and must be identified in all environmental laws, regardless of whether the pertinent response action is a final or interim response action.

Given the above, EPA requests that the Army clarify the above statement at page 7 and revise section III.A. of the ARAR portion of the Decision Document.

2. EPA also has concern over the following statement found at page 10 of the appendix to the Decision Document (page 10 of "Department of the Army's Specific Responses to the Potential State ARAR's Identified by the State of Colorado"). In addressing potential ARAR's from the Colorado Primary Drinking Water Regulations, 5 C.C.R. 1003-1, the Army apparently dismisses these regulations as possibly containing APAR's by stating that "No drinking water is to be supplied as part of this interim action." Similar statements are found at page 9 regarding the

# Colorado State Drinking Water Authorities and Colorado's Basic Standards and Methodologies.

EPA's concern over these statements is that they imply that because drinking water is not to be "supplied" as a result of this response action, the Colorado Primary Drinking Water Regulations and similar regulations must not be applicable or relevant and appropriate. This would constitute a clear misinterpretation of the ARAR concept. The Colorado Primary Drinking Water Regulations may contain chemical-, action-, or location-specific ARAR's which may be applicable or relevant and appropriate to the response action regardless of whether the result of the response action is to "supply" drinking water. In particular, even if individuals are not currently utilizing the various water media for drinking water supplies, requirements contained within such regulations must be evaluated to determine whether they contain potentially pertinent ARAR's. If the intent of the statement is that, simply because the Army does not envision individuals utilizing this water as a drinking water source, and thus such regulations are not pertinent, such an interpretation is an improper interpretation and application of ARAR policy. Therefore, EPA requests that the Army revise these portions of its ARAR analysis.

3. EPA disagrees with the Army's analysis concerning the rules and regulations pertaining to solid and hazardous waste and the requirements for siting of hazardous waste disposal sites under Colorado law set forth at page 7 of the Appendix, wherein the Army states that:

"these rules and regulations are not applicable because they pertain only to disposal sites which are subject to the permit requirements of RCRA, and no such permit requirements apply to this CERCLA on-site interim action."

A similar statement is found at page 8 of the appendix, wherein the Army discusses Colorado Hazardous Waste Regulations at 6 C.C.R. 1007-3.

These statements imply that, merely because CERCLA section 121(e) does not require permits for on-site CERCLA response actions, any requirement which is associated with a permit is automatically not "applicable" under an ARAR analysis. In short, however, an "applicable" standard, requirement, or criteria is one which would apply to a response action if it were not a CERCLA response action (see EPA Guidance at 52 Fed. Reg. 32496 at page 32497). The Army's assertion suggests that any environmental law or regulation which may be associated with a permit can never be "applicable" because CERCLA section 121(e) does not require such permits. However, the issue of whether a permit is required for a CERCLA response action is separate and



distinct from whether a requirement is "applicable"; that is, whether the standard, criteria, or limitation would apply to the response action if it were not a CERCLA response action. The Army cannot rely upon the rationale that the regulations set forth at pages 7 and 8 of the appendix are not applicable or relevant and appropriate simply because permit requirements are contained therein. Therefore, the Army must re-analyze these regulations to determine whether these rules and regulations would be applicable if this were not a Superfund site, or are nevertheless relevant and appropriate aside from the fact that these regulations are associated with permit requirements. Furthermore, even if found not to be applicable, the Army must analyze and fully explain the basis for its assertion that these same rules and regulations contain no relevant and appropriate substantive requirements that are more stringent than relevant and appropriate Federal standards.

4. EPA is also concerned with the Army's assertion at page 6 of the appendix, which states that:

"Provisions for information submittals, notifications, fees, and data reporting which relate to these permit provisions also are not substantive requirements of promulgated State environmental facility siting laws, and accordingly receive no consideration as potential State ARAR's in the context of this interim action."

Again, this is contrary to EPA policy and guidance. EPA's interim guidance on ARAR's, at 52 Fed. Reg. 32498, states that:

" . . . neither applications nor other administrative procedures such as permitting or other administrative reviews are considered ARAR's . . . for actions conducted entirely on-site . . . ."

Nevertheless, that same guidance goes on to state that:

"However, the RI/FS, Record of Decision, and design documents should demonstrate full compliance with all substantive requirements that are ARAR's."

Again, in a given situation, it may be that CERCLA section 121(e) does not require permits for an on-site CERCLA response action. However, it is clear that, even though the administrative procedures and reviews for a permit need not be followed, the substantive requirements that are ARAR's and are contained within such permitting procedures and reviews must be met. Thus, information submittals and data submittals associated with permit provisions and associated regulations may be reflective of substantive ARAR's, and such substantive provisions must be addressed in any pertinent response action. Therefore, the Army cannot summarily dismiss as "receiving no consideration"

such potential ARAR's simply because they are associated with permitting provisions.

Based upon the above, EPA would request revision and correction of all portions of the Decision Document ARAR analysis which are based upon these erroneous interpretations of section 121(e) of CERCLA and ARAR policy and guidance.

5. EPA has a number of general concerns about the ARAR analysis pertinent to NIOSH and OSHA standards discussed by the Army at pages 5 through 8 and has a number of questions regarding this analysis. While the Army has identified these requirements as "ambient or chemical-specific ARAR's," the analysis of these ARAR's appears to primarily treat these ARAR's as "action-specific" ARAR's. The analysis at pages 5 through 8 appears to suggest that these standards for air releases of various volatile organics and other hazardous substances will be met. However, it is unclear as to how these standards are to be applied to the interim response action. Clearly, such standards, being workplace standards, constitute action-specific ARAR's for response action workers. Thus, it should be made clear that these standards will be met at the point of worker exposure.

However, it is unclear as to how these standards are being utilized as ambient or chemical-specific standards for protection of general public health and environmental protection. EPA would request that the Army specify where and how these air pathway ARAR's are being applied in order to adequately protect public health and the environment.

The Decision Document does not adequately explain why these NIOSH and OSHA standards are protective for the general public health and the environment. These standards are workplace-based standards and are developed from the perspective of protecting individuals from workplace exposures. It does not necessarily follow that such workplace exposure levels will constitute a level of protection adequately protective of the general public and the environment. Therefore, additional analysis and explanation of the Army's assertion that utilization of these NIOSH and OSHA standards in setting a level for this interim action will necessarily be "more than sufficiently protective of general public health." As the Army appropriately states, such standards are merely "guidance" to be considered in response actions. Therefore, EPA requests that the Army undertake sufficient analysis to determine whether levels of exposure expressed in those NIOSH and OSHA standards will indeed be sufficiently protective of general public health and the environment.

EPA also requests clarification of the statement at page 7 that:

"the NIOSH and OSHA guidance levels will be attained through the use of an exclusion zone with restrictions on access that effectively supplement the restricted access which already exists at the Arsenal."

EPA is unclear as to the meaning, intent, and purpose of this statement. However, EPA notes that point of compliance for response action workers must be within the workplace environment. Therefore, "use of an exclusion zone" is inappropriate in the context of the Interim Action, as it would appear that response action workers will be within any "exclusion zone" which might be applicable to the general public. Further, it is equally clear that the use of an exclusion zone may not address protection of the environment at the site of the response action. Thus, EPA requests an explanation of the assertion that an "exclusion zone" will be adequately protective of the environment at the Arsenal. Lastly, it is unclear as to how the Army has defined the "exclusion zone," and how this exclusion zone will assure adequate protection of general public health.

Based upon the above, EPA would request correction, clarification, and further discussion of how and where these standards are to be met, how the NIOSH and OSHA standards were determined to be protective of general public health and the environment, and the application of the Army's concept of utilization of an "exclusion zone" to attain the NIOSH and OSHA standards.

6. EPA questions the Army's assertion at page 31 that "a single liner for the evaporation pond will be more than sufficient" in order to be protective of human health and the environment. 40 C.F.R. sections 261.3(c) and 264.221(c) are indeed, at the very least, relevant and appropriate for this portion of the response action. However, EPA cannot agree with the Army's assertion at page 31 that "precipitation runoff from the storage of hazardous waste is not a hazardous waste," since EPA believes that this statement is not pertinent to this discussion. It is clear that decontamination water which will be contained in the evaporation pond is not precipitation runoff. Further, it is clear that liquids accumulating in the evaporation pond will not in reality be "runoff," but will be analogous to leachate from the area being remediated, i.e., such liquids are more accurately characterized as "run on" or "run through." Therefore, these liquids may be hazardous wastes.

Furthermore, EPA questions the adequacy of the Army's assertion that

"in the unlikely event that such migration [from the evaporation pond] did occur, the Arsenal groundwater boundary system will prevent migration to groundwater outside the installation's perimeter."

This assertion clearly fails to take into account the environmental impact of such a release in the area between the impoundment and the boundary system. Therefore, reliance on the groundwater boundary system as a backup measure to be utilized in conjunction with a distant surface impoundment with only a single liner is insufficient. Based upon all of the above, EPA would request re-analysis and revision of this portion of the ARAR analysis.

7. EPA disagrees with certain of the Army's language concerning attaining ARAR's to the maximum extent practicable. As an example, at page 27, the Army states that "the provisions of [40 C.F.R.] sections 264.193, 264.194, and 264.195 will be attained by the Army to the maximum extent practicable." As required for this interim response action, the Army must meet all requirements deemed applicable or relevant and appropriate to the maximum extent practicable. Therefore, the Army is required to make a definitive statement concerning such ARAR's and whether the standards, criteria, and limitations set forth therein will or will not be met. If the Army cannot assure attainment of these standards, criteria, or limitations, then it must set forth why it cannot, to the maximum extent practicable, meet these standards. Merely stating that these provisions will be met to the maximum extent practicable during the response action avoids the requirement that the Army determine whether it will meet these standards and, if it will not, why it will not. Therefore, EPA would request revision and clarification of these statements throughout the document.

8. EPA disagrees with the assertion made by the Army at footnote 7 on page 11 that the 1,000-year containment provision in 6 C.C.R. 1007-2, section 2.5.3, is not applicable or relevant and appropriate because the projected life of this interim response action is approximately 5 years. The 1,000-year containment provision is not premised upon the assumption that a facility will be operating for 1,000 years, but is instead a standard requiring that any facility be engineered so that it would be sufficient for up to 1,000 years. Therefore, EPA requests re-analysis of the Army's determination that this provision is not an ARAR solely because the facility will be in operation for only 5 years.

9. As a general matter, throughout the Decision Document, the Army has failed to designate or explain why a particular standard is or is not "applicable," as opposed to "relevant and appropriate." EPA wishes to make it clear that, as set forth in EPA Guidance at 52 Fed. Reg. 32497, a determination that a standard is "relevant and appropriate" requires that it be met to the same degree as if it were "applicable." Nevertheless, EPA would request that, at each pertinent point in the ARAR discussion, the Army explain why a particular regulation or standard is merely "relevant and appropriate" as opposed to

"applicable." The pertinence of this distinction arises in conjunction with the Army's assertion that it has "exercised its discretion" in selecting portions of ARAR's which are relevant and appropriate to the interim action. As set forth above, this discretion may only be utilized when a particular standard is relevant and appropriate, as opposed to applicable. Therefore, EPA would request that, at the same time the Army reviews its explanation of applicability versus relevance and appropriateness, it also review its ability to "exercise discretion" in picking and choosing the various portions of the standards, criteria, limitations, or requirements that it has selected. Further, where the Army feels it is justified in exercising its discretion, EPA would request how and why the Army has exercised its discretion, full identification of those portions of relevant and appropriate ARAR's which the Army has disregarded, and a full explanation of why such potential ARAR's are not relevant and appropriate.

10. EPA reserves its right to object to the Army's position set forth at footnote 9 on page 33 and again at page 12 section (xix) of the appendix that certain Colorado statutory provisions do not constitute ARAR's in the absence of promulgation with adequate notice and comment. EPA believes that this issue is moot at this point in time, as the ARAR analysis indicates that the standards referred to in footnote 9 will be met in any event. However, EPA calls to the Army's attention that C.R.S 25-12-103 and 25-12-106 contain explicit decibel levels for noise emissions. Further, EPA notes EPA Guidance at 52 Fed. Reg. 32498, which states that " 'Promulgated' requirements are laws imposed by State legislative bodies and regulations developed by State agencies that are of general applicability and are legally enforceable."

11. Based upon pending litigation, EPA reserves comment on the assertion that the standards set forth at 6 C.C.R. 1007-2, section 2.5.6, are "too imprecise to constitute an objective State standard, requirement, criteria, or limitation."

12. EPA reserves comment on the Army's "position" that the Endangered Species Act is an "ARAR" as set forth in footnote 6 at page 9 since the Army has indicated that it intends to adhere to all pertinent provisions of that Act for purposes of this Interim Action.

SHELL COMMENTS ON DRAFT FINAL DECISION  
DOCUMENT FOR INTERIM ACTION OF  
BASIN F HAZARDOUS WASTE CLEANUP

1. Page 1, Section 1.0, Introduction

Capping and runoff control are essential attributes of the IRA and should be included in the introduction.

2. Page 1, Section 2, History

Shell believes that this section doesn't adequately describe the history of Basin F and is considering submitting additional information to the Army. (For example, the site of present-day lined Basin F was used as an unlined disposal basin from 1953 to 1956. It was modified as a lined basin in 1956.) Since this doesn't appear to impact upon the work product contained in the document, it is not necessary to submit detailed comments on the history at this time.

3. Page 1, last paragraph

The second sentence indicates that Basin F was the only solar evaporative disposal basin in use after August 1957. Basin A was still in use after this date as an evaporative basin for disposal of storm runoff water.

4. Page 2, bottom of page

Natural resource damage was not documented by the referenced studies. These experiments used laboratory animals to conclude that the wetting of feathers followed by hypothermia, and the inability to fly or float was the likely result of exposure to Basin F fluids. Why not use the phrase "adverse impacts have

been documented" in place of "some natural resource damage has been documented"?

5. Page 3, Section 3.0

The objectives should be listed in order of importance. If this were accomplished it is probable that the first objective would be listed last, if at all. Refer to the top of page 12 of the appendix for the statement that "the volatiles originally contained in Basin F liquid apparently have evaporated". Based on this statement, why is the first objective included?

6. Page 3, last paragraph

To date, EPA IRA RODs have also included a brief discussion of the balancing process used in alternative selection. For a complete record, this information should be summarized and included in this document.

Examination of the 250 RODs available to date reveal a list of 30 grounds or factors which have influenced EPA decision-making. This list may provide a simple, concise approach to justification of selected alternatives (see attachment).

7. Page 4, Section 4.0 Interim Action Alternatives, second bullet

Consistency with the NCP requires cost effectiveness. This statement should be rewritten in a more definitive manner.

8. Page 4, Section 4.1 & Page 6, Section 4.2

What document(s) summarize the evaluation of the various interim action alternatives considered for Basin F liquids and solids?



9. Page 5, last bullet

Since "enhanced evaporation" is already existing, isn't this part of the "No Action" alternative? Or is this inferring that the enhanced evaporation system is not fully operational?

10. Page 6, top and bottom of page

As noted in the earlier comment, reasons for alternative selection and non-selection must be provided to understand the decision and provide an adequate administrative record.

11. Page 6, last paragraph

It is not clear if the waste pile has a double or single liner. Please clarify.

12. Page 10, last paragraph

It is not clear if the waste pile has a double or single liner. Does the soil foundation referenced perform the function of a second liner? Please clarify.

13. Page 10, bottom of page

A general statement describing the standards used to determine how much subsoil will be removed from beneath the waste pile and the basin is needed.

14. Page 12, bottom paragraph

Will final samples be collected from the area to be used for the waste pile? Will the results of this sampling of the basin be used to decide on additional excavation to some predetermined concentration horizon, and, if so, how will the numerical concentration limit be derived?

Additional Comments by Shell Oil Company on the  
Department of the Army's ARAR Selection  
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The section of the Draft Final Decision Document entitled "Department of the Army's ARAR Selection and Determination of ARAR Impact for Basin F Interim Action" ("Army ARAR Document") both takes into account and rejects comments made by Shell, by letter dated November 17, 1987, from Ed McGrath to David Anderson. Shell reiterates in these comments the comments originally made November 17, 1987 that were rejected by the Army. In several instances, the Army ARAR Document does not explain why the Shell comments were rejected. These comments do not address those original Shell comments that were accepted by the Army.

Scope of Interim Action (Army ARAR Document at 1-2)

Shell requests the Army to clarify whether the reference to five years in paragraph 3 on page 1 is a design specification or an arbitrarily selected date; what it is based upon; and whether there would be any additional difference in construction costs if the five year criteria were three or five years.

Shell also requests the Army to resolve the inconsistency between the inclusion of volatile organics in the list of contaminants of concern on page 2 of the Army ARAR Document and the statement on page 12 of the Appendix that the "volatiles originally contained in Basis F liquid apparently have evaporated."

Air Standards and Other Standards (Army ARAR Document at pp. 5-8)

The Army continues to propose standards and recommendations designed to protect workers as levels for protection of the public health. Shell repeats its comment that worker standards and recommendations do not apply to persons not exposed under closed conditions.

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The Army rejected the Shell comment that the Endangered Species Act cannot be an ARAR because it does not set forth a "level or standard of control" relating to the "degree of cleanup." To support its position, it stated that this Act "is a Federal environmental law appropriate for consideration as an ARAR, just as is the Marine Protection,

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research and Sanctuaries Act ("MPRSA") that is specifically cited in CERCLA Section 121(d)(2)(A)(i), 42 U.S.C. § 9621(d)(2)(A)(i)." MPRSA, however, unlike the Endangered Species Act, does authorize the promulgation of levels or standards of control relating to the degree of cleanup. See, e.g., 40 C.F.R. § 227.6(e)(1), (2). The Endangered Species Act, in contrast, does not authorize promulgation of such regulations. Instead, it sets forth a consultation process with the Fish and Wildlife Service that may result in recommendations.

The Shell November 17th comments also point out that mature cottonwoods and prairie dog towns are not critical habitats. The Army ARAR Document, however, continues to suggest that they are. With respect to the mitigative measures proposed, Shell requests clarification on how the 150 feet referred to on page 13, paragraph (ii)(1) was determined to be a suitable distance. Further, there has been no showing that the loss of a portion or all of the prairie dog habitat in the area under consideration will affect the eagle or hawk prey base in any manner.

Executive Orders (Army ARAR Document at 10)

The Army ARAR Document also fails to explain why the Army disagrees with the Shell position that Executive Orders 11988 and 11990 are not ARARs.

Colorado Installation Standards (Army ARAR Document at 11, 15, and 8)

Shell reiterates its request that the Army explain why it states on page 8 of the Appendix that Parts 260 to 267 are not applicable or relevant and approximate, yet states on page 11 of the Army ARAR Document that section 264.18(a), (b)(2) is relevant and appropriate.

Shell also suggests that the Army clarify Footnote 7 by inserting the word "year" after "1000".

Excavation and Removal of Basin F Liner, Sludges, Soils and Remaining Liquid and Recontouring and Capping (Army ARAR Document at 22-24, 32-33)

Shell repeats its comment that section 264.13, regarding the requirement for conducting a general waste analysis, is not an ARAR.

While Shell agrees that land ban provisions of RCRA Section 3004 are not applicable or relevant and appropriate because of the CERCLA exemption, Shell requests the Army to

9. Page 5, last bullet

Since "enhanced evaporation" is already existing, isn't this part of the "No Action" alternative? Or is this inferring that the enhanced evaporation system is not fully operational?

10. Page 6, top and bottom of page

As noted in the earlier comment, reasons for alternative selection and non-selection must be provided to understand the decision and provide an adequate administrative record.

11. Page 6, last paragraph

It is not clear if the waste pile has a double or single liner. Please clarify.

12. Page 10, last paragraph

It is not clear if the waste pile has a double or single liner. Does the soil foundation referenced perform the function of a second liner? Please clarify.

13. Page 10, bottom of page

A general statement describing the standards used to determine how much subsoil will be removed from beneath the waste pile and the basin is needed.

14. Page 12, bottom paragraph

Will final samples be collected from the area to be used for the waste pile? Will the results of this sampling of the basin be used to decide on additional excavation to some predetermined concentration horizon, and, if so, how will the numerical concentration limit be derived?

clarify that disposal and storage is being undertaken pursuant to section 104, not section 106, of CERCLA.

General Construction Activities (Army ARARs Document at 25)

Shell repeats its comment that Colorado Air Pollution Control Regulation No. 1, Section III (D)(2)(b) ("construction activities") should not be selected as an ARAR.

Appendix

Shell repeats its comment that no state statutes can be considered as ARARs.

DEPARTMENT OF THE ARMY'S  
ARAR SELECTION AND DETERMINATION OF ARAR  
IMPACT FOR BASIN F INTERIM ACTION

I. SCOPE OF INTERIM ACTION

As described in the Basin F Interim Action Decision Document and the supporting administrative record, the Basin F Interim Action (or "Interim Action") will involve:

- (1) Installation and operation of a liquid removal system to transfer to three lined 1.33+ million gallon storage tanks at the Arsenal (constructed by the Shell Oil Company) of approximately 4 million gallons of liquid hazardous waste for temporary containment lasting approximately five years;
- (2) Absorption of approximately 405,000 cubic yards of contaminated sludge material and residual liquid;
- (3) Construction of a waste pile in the southwest corner of Basin F with a maximum storage volume of approximately 605,000 cubic yards which will contain the removed liner, soil, absorbed sludge and liquid for approximately five years;
- (4) Excavation and removal of approximately 405,000 cubic yards of bituminous liner, soil, absorbed sludge and residual liquid to the temporary waste pile;
- (5) Installation of a surface impoundment (with run-off/run-on control structures) sufficient to hold approximately 1.5 million gallons of contaminated leachate;

- (6) Installation of an evaporation pond (with run-off/run-on control structures) sufficient to hold approximately 8 million gallons of precipitation run-off and decontamination water; and
- (7) Recontouring and capping of the excavated area to provide natural drainage after completion of the above-referenced work components.

The contaminants of concern in the Basin F liquids and soils are: Aldrin; Ammonia; Benzene; Carbon Tetrachloride; Chlordane; Chlorobenzene; Chloroform; 1,1-Dichloroethane; 1,2-Dichloroethylene; Dicyclopentadiene ("DCPD"); Dichlorodiphenyltrichloroethane ("DDT"); Dieldrin, Diisopropylmethylphosphonate ("DIMP"); Endrin; Ethylbenzene; Malathion; Methylene Chloride; Methyl Isobutyl Ketone; Tetrachloroethylene, Toluene, 1,1,1-Trichloroethane; 1,1,2-Trichloroethane; Trichloroethylene; Vapona; and Xylene.

## II. COMPLIANCE WITH INTERIM ACTION PROCESS FOR BASIN F

### A. Process

With respect to the Basin F Interim Action, the Interim Action Process is as follows:

- (1) EPA, Shell and the State were afforded an opportunity to identify on a preliminary basis any potentially applicable or relevant and appropriate Federal or State standards, requirements, limitations and criteria ("ARARS");



- (2) Counsel for EPA, Shell and the State received a preliminary draft of the ARARS Document for 18 calendar days for early review and comment with respect to the Army's proposed ARAR selections and findings of ARAR impact on the Interim Action;
- (3) Following receipt of comments on the draft ARARs, the Army prepared a draft Basin F Decision Document (which, consistent with the Interim Action Process filed with the Court on June 5, 1987, shall serve the purpose of a Record of Decision ("ROD")), an updated version of the ARAR Document, the bid specifications for this Interim Action and the supporting administrative record;
- (4) The Army will make available the draft Decision Document, ARAR Document, bid specifications and administrative record to EPA, Shell, the State and the general public for 33 days of review and comment (including a public meeting near the Arsenal);
- (5) On the close of the comment period, the Army will prepare a draft final Decision Document (with supporting ARAR Document) that EPA or Shell may raise pursuant to the dispute resolution process which was agreed to by the Army, EPA and Shell in the June 5, 1987 submission to the Court; and
- (6) The Army will then finalize the Basin F Interim Action Decision Document consistent with the result of any

determination made during the dispute resolution process.

Thereafter, the Basin F Interim Action Decision Document will be subject to judicial review in accordance with Sections 113 and 121 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9613 and 9621.

B. Attainment of ARARs

The interim action process reported to the Court on June 5, 1987 in United States v. Shell Oil Co. provides that interim response actions (including the Basin F Interim Action) shall, to the maximum extent practicable, attain applicable or relevant and appropriate Federal and State ARARs.

C. Consultations Concerning Identification and Selection of ARARs

By letter of August 24, 1987, counsel for the Army requested that EPA, Shell and the State preliminarily identify in writing the potential contaminant-specific or chemical-specific ARARs, action-specific ARARs, location-specific ARARs and any other ARARs which they believe may be pertinent to the Basin F Interim Action. EPA and the State responded by identifying potential ARARs.

The potential ARARs identified by EPA and the State are addressed in Part III of this document. (In addition, attached as an appendix is the "Department of the Army's Response to the 'Potential State ARARs' Identified by the State of Colorado"

which specifically addresses all of the State ARAR claims which appear in the State's August 26, 1987 letter.)

On November 18, 1987, Shell submitted comments on the Army's preliminary ARAR identification. No comments were received from EPA and no responsive comments were received from the State.

### III. SELECTION AND DETERMINATION OF IMPACT OF ARARS

#### A. AMBIENT OR CHEMICAL-SPECIFIC ARARS

##### 1. Selection

Ambient or chemical-specific requirements set health or risk-based concentration limits or ranges in various environmental media for specific hazardous substances, pollutants or contaminants. Such ARARs set either protective cleanup levels for the chemicals of concern in the designated media or indicate an appropriate level of discharge.

##### (a) Air Standards

There are, at present, no National or State ambient air quality standards currently applicable or relevant and appropriate to any volatile and semi-volatile chemicals which could be released as a direct result of the Basin F Interim Action.

Nevertheless, the Army will utilize the following NIOSH and OSHA standards for guidance<sup>1</sup> in setting a level for this

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<sup>1</sup>EPA in its "Interim Guidance on Compliance with Other Applicable or Relevant and Appropriate Requirements," 52 Fed. Reg. 32496, 32497 (1987), notes that, since there are at present only a limited number of ambient or chemical-specific

(continued...)

Interim Action which is more than sufficiently protective<sup>2</sup> of general public health<sup>3</sup>:

Volatiles

Standard

|                        |                                   |
|------------------------|-----------------------------------|
| Ammonia                | 25 ppm, (ref 1) TLV               |
| Benzene                | 10 ppm (Ref 1)                    |
| Carbon Tetrachloride   | 5 ppm (Ref 1) TLV                 |
| Chlorobenzene          | 75 ppm, (Ref 1) TLV               |
| 1,1-Dichloroethane     | 100 ppm, 400mg/m3 (8TWA) (Ref 2)  |
| 1,2-Dichloroethylene   | 200 ppm, 790mg/m3 (8TWA) (Ref 2)  |
| Ethylbenzene           | 100 ppm/435mg/m3 (8TWA) (Ref 2)   |
| Methyl Isobutyl Ketone | 100 ppm, 410mg/m3 (8TWA) (Ref 2)  |
| Tetrachloroethylene    | 150 ppm, (AP 5:3) (Ref 1) TLV     |
| Toluene                | 100 ppm (Ref 1) TLV               |
| Trichloroethylene      | 50 ppm (Ref 1) TLV                |
| 1,1,1-Trichloroethane  | 350 ppm, 1900mg/m3 (8TWA) (Ref 2) |
| 1,1,2-Trichloroethane  | 10 ppm, 45mg/m3 (8TWA) (Ref 2)    |
| Xylene                 | 100 ppm, 435 mg/m3 (8TWA) (Ref 2) |

Semivolatiles

Standard

|           |                      |
|-----------|----------------------|
| Aldrin    | 0.25 mg/m3 (Ref 2)   |
| Chlordane | 0.5 mg/m2 (Ref 2)    |
| DDT       | 10 mg/m3 (Ref 2)     |
| Dieldrin  | 0.25 mg/m3 (Ref 2)   |
| Endrin    | 0.1 mg/m3 (Ref 2)    |
| Malathion | 10 mg/m3 (Ref 1) TLV |
| Vapona    | 1 mg/m3 (Ref 2)      |

(Ref 1) = NIOSH

Pocket Guide to Chemical Hazards,  
USDHHS, September 1985.

<sup>1</sup>(...continued)  
requirements, pertinent health advisory levels may be utilized instead even though these levels are not ARARs.

<sup>2</sup>Since the NIOSH or OSHA standards are designed to be protective of workers who are exposed to chemicals 40 hours a week under closed conditions, these standards provide an abundant margin of protection for the public health and environment in the circumstances of this Interim Action where, even without such protective levels, the chances of off-Arsenal public exposure to measurable levels of Basin F volatiles or semivolatiles is very remote.

<sup>3</sup>While chloroform, DCPD and methylene chloride are volatiles, and DIMP is a semivolatile, there are presently no ARARs or chemical-specific, health-based advisory levels that pertain to the emission of these chemicals into the air.

(Ref 2) = OSHA General Industry, 29 CFR 1910  
nTWA = n hour time-weighted average  
AC = acceptable ceiling  
AP (n:m) = acceptable peak for n minutes in any m hours

(b) Other Standards

While not ARARs, the worker protection requirements of Section 126 of the Superfund Amendments and Reauthorization Act of 1986 shall be met through compliance with the OSHA interim final rule that appears in 51 Fed. Reg. 45654 (1986).<sup>4</sup>

Since this Interim Action does not contemplate discharging any Basin F contaminants into the soils, groundwater or surface water of the Arsenal, the provisions of the Resource Conservation and Recovery Act ("RCRA"), the Safe Drinking Water Act and the Clean Water Act (and any comparable State laws) are not applicable or relevant and appropriate for this ARAR category.

2. Determination of ARAR Impact

(a) Air Standards

The NIOSH and OSHA guidance levels will be attained through the use of an exclusion zone with restrictions on access that effectively supplements the restricted access which already exists at the Arsenal.

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<sup>4</sup>Although OSHA proposed a permanent final rule on August 10, 1987, 52 Fed. Reg. 29620, the comment period on this rule did not close until October 5, 1987.

It should be noted that, pursuant to CERCLA Section 301(f), 42 U.S.C. § 9651(f), the NCP must be amended by December 11, 1988 to provide for the protection of the health and safety of employees involved in response actions.

These NIOSH and OSHA guidance levels will also be attained by removing Basin F liquid from the existing lagoon and transferring this Basin F liquid to the storage tanks in a manner which minimizes the release of volatiles and semivolatiles into the air and through use of a pug mill for the absorption process.<sup>5</sup>

The Contractor shall also prepare and have approved an Air Monitoring Plan, as well as retain an air monitoring specialist, as provided in the bid specifications.

Although none of the NIOSH or OSHA guidance levels pertain directly to protection of the environment, attainment of these levels will nevertheless be sufficiently protective of the environment.

(b) Other Standards

The OSHA provisions that pertain to the health and breathing safety of the workers performing the Interim Action shall be attained through the use of protective clothing (with breathing apparatus where appropriate), protective operating procedures, the employee training program specified in the bid specifications and the health and safety plan to be developed and approved as provided in the bid specifications.

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<sup>5</sup> While there are no pertinent ARARs or guidance levels for chloroform, DCPD, DIMP and methylene chloride, the aforementioned protective measures will also necessarily minimize the release of these chemicals into the air. Similarly, the use of the exclusion zone, the controlled transfer of Basin F liquid, the use of the pug mill and implementation of the Air Monitoring Plan should eliminate or significantly reduce any unpleasantness which the off-Arsenal public might experience from the release of ammonia during this Interim Action.

B. LOCATION-SPECIFIC ARARS

1. Selection

Locational requirements set restrictions on activities depending on the characteristics of the site or its immediate environment. These requirements function like action-specific requirements. Alternative remedial actions may be restricted or precluded depending on the location or characteristics of the site and the requirements that apply to it.

The following location-specific ARARs are selected by the Army as standards, requirements, criteria or limitations under Federal environmental law and are applicable to this Interim Action:

(a) Endangered Species Act of 1973<sup>6</sup>

- (i) 16 U.S.C. § 1536 -- Prohibits Federal agencies from jeopardizing threatened or endangered species or adversely modifying critical habitats essential to their survival. If listed species or habitat may be affected, formal consultation with Fish and Wildlife Service must be undertaken and, following such consultation, mitigation measures may be necessary.

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<sup>6</sup>It is the position of the Army that the Endangered Species Act is a Federal environmental law appropriate for consideration as an ARAR, just as is the Marine Protection, Research and Sanctuaries Act that is specifically cited in CERCLA Section 121(d)(2)(A)(i), 42 U.S.C. § 9621(d)(2)(A)(i).

- (ii) 50 C.F.R. § 424.02(d)(2) -- A "critical habitat" includes "specific areas outside the geographic area occupied by a species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species."
- (iii) 50 C.F.R. Part 402, Interagency Cooperation -  
- Endangered Species of 1973, As Amended --  
Provides procedures for compliance with the Endangered Species Act by executive agencies.
- (b) Executive Order 11988, Floodplain Management --  
Requires Federal agencies to evaluate the potential effects of actions that they may take in a floodplain to avoid, to the extent possible, adverse effects associated with the direct and indirect development of a floodplain.
- (c) Executive Order 11990, Protection of Wetlands --  
Requires Federal agencies to avoid, to the extent possible, adverse impacts from the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.

The following location-specific ARARs are selected by the Army as relevant and appropriate to this Interim Action:

- (d) RCRA Regulations
  - (i) 40 C.F.R. § 264.18(a) -- Prohibits construction of new facilities within 61



meters (200 feet) of a fault which has displacement in Holocene time;

(ii) 40 C.F.R. § 264.18(b) -- Facility located within a 100-year floodplain must be designed, constructed, operated and maintained to avoid washout.

(e) Colorado Installation Standards 6 CCR 1007-3<sup>7</sup>

(i) Section 264.18(a)(1) -- "Portions of new facilities where treatment storage, or disposal of hazardous waste will be conducted must not be located within 1000 feet of a fault which has had displacement in Holocene time."

(ii) Section 264.18(b)(2) -- "New facilities for disposal shall not be located within the 100-year floodplain."

## 2. Determination of ARAR Impact

(a) Endangered Species Act of 1973

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<sup>7</sup>It should be noted that the 1000 containment provision in 6 CCR 1007-2, Section 2.5.3 is not applicable or relevant and appropriate to this Interim Action with an estimated project life span of only approximately five years.

The prohibition in 6 CCR 1007-2, Section 2.5.6 that a facility be located "within a distance controlled by the owner/operator by acceptable means to prevent adverse effects on the public health should unexpected discharges of hazardous waste occur" is not an ARAR because it is too imprecise to constitute an objective State standard, requirement, criteria or limitation. Nevertheless, the geology of the Arsenal, the operation of the Arsenal groundwater boundary systems and the Army's continuing use restrictions are sufficient to prevent any such adverse effects on the public health.

- (b) Executive Order 11190, Protection of Wetlands
- (c) Executive Order 11988, Floodplain Management

(i) Impact

The original bid specifications call for two borrow sites on the Arsenal to provide clay and topsoil for the recontouring and capping of the excavated area in Basin F.

Borrow Site No. 1 would consist of 100 acres located along the entire eastern side of Section 25 (including a portion of First Creek) from which approximately 350,000 cubic yards of clay would be removed. As proposed in the bid specifications, the excavation of Borrow Site No. 1 could destroy approximately 20 acres of prairie dog habitat (the prey base for the bald eagles and ferruginous hawks<sup>8</sup>), mature cottonwoods which are the roost and perch trees for the bald eagles and ferruginous hawks, and vegetated wetland areas along First Creek.

Borrow Site No. 2 would consist of 45 acres located in the west central side of Section 25 (including a portion of Sand Creek Lateral) from which approximately 140,000 cubic yards of general fill soil would be removed. As proposed in the bid

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<sup>8</sup>Ferruginous hawks, while somewhat rare, are not a listed endangered or threatened species. In 50 Fed. Reg. 37958, 37963 (1985), the U.S. Fish and Wildlife Service categorized ferruginous hawks as a species for which listing as endangered or threatened is possibly appropriate, but for which there is presently no conclusive data available on biological vulnerability and threat to support such a rule. While the bald eagles, and not the ferruginous hawks, at the Arsenal are the focus of these location-specific ARAR modifications of the bid specifications, these modifications will inevitably benefit the ferruginous hawks as well as the bald eagles.

specifications, the excavation of Borrow Site No. 2 could destroy 45 acres of prairie dog habitat.

No recontouring or reclamation of either burrow site is proposed in the original bid specifications.

As proposed in the original bid specifications, excavation under the Basin F Interim Action would commence in the Fall 1987 and continue as necessary into the winter months.

(ii) Bid Specification Modifications

In accordance with the applicable ARARs identified in Subpart B(1), this Interim Action shall be modified to protect the environment by providing that:

- (1) Borrow Site No. 1 -- Soil compaction or burrow disturbance shall not occur within 150 feet of First Creek drainage to protect the existing integrity of the Creek and the associated wetlands and floodplain. No excavation shall occur within 150 feet of any cottonwood tree; all cottonwood trees shall remain undisturbed to protect the roost and perch sites of bald eagles.
- (2) Borrow Site No. 1 will be relocated, in consultation with U.S. Fish and Wildlife and the Colorado Division of Wildlife, to the maximum extent practicable consistent with the types and quantities of clay needed for this Interim Action. In this manner, the

Army will minimize any disruption of prairie dog burrows and thereby assure a continuation of a convenient prey base for the bald eagles.

- (3) The Army will not start any excavation pursuant to this Interim Action before April 1, 1988 and will endeavor to complete this Interim Action in early November 1988 in order to avoid disturbing any bald eagles present at the Arsenal.
- (4) Borrow Sites No. 1 and 2 are to be permanently recontoured and revegetated, in consultation with the U.S. Fish and Wildlife Service and the Colorado Division of Wildlife, to minimize damage to the floodplains and to enhance wildlife values.
- (5) To the extent that this Interim Action unavoidably results in the destruction of prairie dog habitat, the Army will develop, in consultation with U.S. Fish and Wildlife and the Colorado Division of Wildlife, other Arsenal areas that will be suitable replacements for any destroyed prairie dog habitats.
- (d) RCRA Regulations
- (e) Colorado Installation Standards 6 CCR 1007-3, Section 264.18(a)(1) & (b)(2)

Since the relevant and appropriate promulgated State standards are more stringent than any relevant and appropriate Federal standard, requirement, criterion or limitation, these Colorado regulations shall be utilized for purposes of this Interim Action to provide protection for the public health and environment. Accordingly, the bid specifications will be revised to provide expressly that no facilities to be constructed pursuant to the Basin F Interim Action will be located within 1000 feet of a known fault which had displacement in Holocene time or within a 100-year floodplain.

C. PERFORMANCE, DESIGN OR OTHER ACTION-SPECIFIC ARARS

1. Selection

Performance, design or other action-specific requirements set controls or restrictions on particular kinds of activities related to management of hazardous substances, pollutants or contaminants. These action-specific requirements may specify particular performance levels, actions or technologies, as well as specific levels (or a methodology for setting specific levels) for discharged or residual chemicals.

(a) Tanks--Construction and Operation

The following performance, design or other action-specific ARARS are selected by the Army as relevant and appropriate to this portion of the Interim Action:

- (i) 40 C.F.R. § 264.192 -- Foundation, structural support, seams, connections and pressure controls (if applicable) must be adequately

designed and the tank system must have sufficient structural strength, compatibility with the wastes to be stored, and corrosion protection to ensure that it will not collapse, rupture or fail. Tank system is to be properly installed, tested and inspected, and ancillary equipment supported and protected.

- (ii) 40 C.F.R. § 264.193 -- Secondary containment systems shall be designed, installed and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater or surface water, and shall be capable of detecting and collecting releases and accumulated liquids until the collected material is removed. Secondary containment shall include at least one of the following: a liner (external to the tank), a vault, a double-walled tank or equivalent device. (External liners must contain 100 percent of capacity of the largest tank within its boundary, prevent run-on or infiltration of precipitation and contain 25-year, 24-hour rainfall event, be free of cracks or gaps and surround the tank(s) completely.) Ancillary equipment must also

be provided with a secondary containment system.

(iii) 40 C.F.R. § 264.194 -- Appropriate controls and practices must be used to prevent spills and overflows from tanks or containment system.

(iv) 40 C.F.R. § 264.195 -- Schedule and procedure for daily inspections must be developed and followed.

(b) Waste Pile -- Construction and Operation

The following performance, design or other action-specific ARARs are selected by the Army as relevant and appropriate to this portion of the Interim Action.

(i) 40 C.F.R. § 264.251(a)(1) -- A new waste pile must have a liner "designed, constructed and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or groundwater or surface water . . . ." The liner must be: "[c]onstructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients, physical contact with the waste or leachate to which they are exposed, climatic

conditions, the stress of installation, and the stress of daily operation";

(2) "[p]laced upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner . . . ."; and

(3) "[i]nstalled to cover all surrounding earth likely to be in contact with the waste or leachate; . . . ."

(ii) 40 C.F.R. § 264.251(a)(2) -- A new waste pile must have "[a] leachate collection and removal system immediately above the liner that is designed, constructed, maintained and operated to collect and remove leachate from the pile." The leachate depth over the liner shall not exceed 30 cm (one foot). The leachate system must be: (1) constructed of materials that are chemically resistant to the waste in the pile and the expected leachate and of sufficient strength and thickness to prevent collapse under overlaying waste etc.; and (2) designed to function without clogging.

(iii) 40 C.F.R. § 264.251(c) & (d) -- A run-on/run-off system must be designed,



constructed, operated and managed for the waste pile sufficient to control at least the water volume from a 24-hour, 25-year storm.

- (iv) 40 C.F.R. § 264.251(e) -- Collection and holding facilities associated with run-on/run-off systems must be emptied or managed expeditiously after storms to maintain design capacity.
- (v) 40 C.F.R. § 264.251(f) -- If the waste pile contains any particulate matter which may be subject to wind dispersal, it must be covered or otherwise managed to prevent this.
- (vi) 40 C.F.R. § 264.254 -- The waste pile must be inspected immediately after construction and installation. Once a waste pile is constructed, it must be inspected weekly and after storms.
- (c) Surface Impoundment -- Construction and Operation

The following performance, design or other action-specific ARARs are selected by the Army as relevant and appropriate to this portion of the Interim Action:

- (i) 40 C.F.R. § 264.221(c) -- New surface impoundments must have two or more liners and a leachate collection system. The top liner

is to be designed and constructed to prevent migration of any constituent into the liner. The lower liner is to be designed and constructed to prevent migration through the liner (it is sufficient if the lower liner is "constructed of at least a 3-foot layer of recompacted clay or other natural material with a permeability of no more than  $1 \times 10^{-7}$  centimeter per second....")

- (ii) 40 C.F.R. § 264.221(e) -- "A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error."
- (ii) 40 C.F.R. § 264.221(f) -- "A surface impoundment must have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit."
- (iv) 40 C.F.R. § 264.226 -- Liners and cover

systems (e.g., membranes, sheets or coatings) must be inspected during construction and installation for uniformity, damage and imperfections. Once a surface impoundment is in operation, it must be inspected weekly and after storms.

(d) Evaporation Pond -- Construction and Operation

The following performance, design or other action-specific ARARs are selected by the Army as relevant and appropriate to this portion of the Interim Action:

- (i) 40 C.F.R. § 261.3(c)(2)(i) -- "[A]ny solid waste generated from the treatment, storage or disposal of a hazardous waste, including . . . leachate (but not including precipitation run-off) is a hazardous waste." (Emphasis supplied.)
- (ii) 40 C.F.R. § 264.221(d) -- Subsection (c) of this section (requiring two liners for new surface impoundments for hazardous wastes) does not apply if it is found that "alternative design and operating practices, together with locational characteristics, will prevent the migration into the groundwater or surface water at least as

effectively as such liners and leachate collection system."

- (e) Excavation and Removal of Basin F Liner, Sludges, Soils and Remaining Liquid and Recontouring and Capping

The following performance, design or other action-specific ARARs are selected by the Army as relevant and appropriate to this portion of the Interim Action:

- (1) (i) 40 C.F.R. § 264.13 -- Before hazardous waste is stored or disposed, a detailed chemical and physical analysis must be taken. The analysis shall contain all the information necessary to store or dispose of the waste consistent with RCRA. Analysis must be repeated as necessary to ensure that it is accurate and up to date. The analysis shall include the parameters (with basis) for the analysis, test methods used to test for these parameters and the sampling method used to obtain a representative sample of waste.

- (ii) 40 C.F.R. § 264.228(a) -- For closure of a surface impoundment:

- (1) [r]emove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless § 261.3(d) of this chapter applies; or
- (2) (i) Eliminate free liquids by removing liquid wastes or solidifying remaining wastes or waste residues;

- (ii) Stabilize remaining wastes to a bearing capacity sufficient to support final cover; and
- (iii) Cover the surface impoundment with a final cover designed and constructed to:
  - (A) Provide long-term minimization of the migration of liquids through the closed impoundment;
  - (B) Function with minimum maintenance;
  - (C) Promote drainage and minimize erosion or abrasion of the final cover;
  - (D) Accommodate settling and subsidence so that the cover's integrity is maintained; and
  - (E) Have a permeability less than or equal to the permeability of any bottom liner system or natural sub-soils present.
- (iv) RCRA Section 3004(d), (j) & (k), 42 U.S.C. § 6924(d), (j) & (k) -- Prohibits placement and storage of untreated hazardous waste into surface impoundments, waste piles, etc., after July 8, 1987, unless the disposal of contaminated soil and debris results from a response action taken pursuant to CERCLA Sections 104 or 106, 42 U.S.C. §§ 9604 or 9606, up through November 9, 1988, or the storage is for the purpose of "accumulation of such quantities of hazardous wastes as are necessary to facilitate proper recovery, treatment or disposal."
- (f) General Construction Activities

The following performance, design or other action-specific State ARARs are selected by the Army as relevant and appropriate to this portion of the Interim Action and more stringent than any applicable or relevant and appropriate Federal standard, requirement, criterion or limitation:

- (i) Colorado Air Pollution Control Commission Regulation No. 1, 5 CCR 1001-3, Part III(A)(1), "Fuel Burning Equipment":

No owner or operator shall cause or permit to be emitted into the atmosphere from any fuel-burning equipment, particulate matter in the flue gases which exceeds the following:

- a. 0.5 lbs. per  $10^6$  BTU heat input for fuel burning equipment of less than or equal to  $1 \times 10^6$  BTU/hr. total heat input design capacity;
- b. For fuel burning equipment with designed heat inputs greater than  $1 \times 10^6$  BTU per hour, but less than or equal to  $500 \times 10^6$  BTU per hour, the following equation will be used to determine the allowable particulate emission limitation.

$$PE = 0.5(FI)^{-0.26}$$

Where:

PE = Particulate Emission in Pounds per million BTU heat input.

FI - Fuel Input in Million BTU per hour.

- c. 0.1 lbs. per  $10^6$  BTU heat input for fuel burning equipment of greater than  $500 \times 10^6$  BTU per hour or more.
- d. If two or more fuel burning units connect to any opening, the maximum allowable emission rate shall be calculated by summing the allowable emissions from the units being operated.

(ii) Colorado Air Pollution Control Commission  
Regulation No. 1, 5 CCR 1001-3, Part  
III(D)(2)(b), "Construction Activities":

(i) Applicability - Attainment and  
Nonattainment Areas

(ii) General Requirement

Any owner or operator engaged in clearing or leveling of land or owner or operator of land that has been cleared of greater than one (1) acre in nonattainment areas from which fugitive particulate emissions will be emitted shall be required to use all available and practical methods which are technologically feasible and economically reasonable in order to minimize such emissions in accordance with the requirements of Section III.D. of this regulation.

(iii) Applicable Emission Limitation Guideline

Both the 20% opacity and the no off-property transport emission limitation guidelines shall apply to construction activities; except that with respect to sources or activities associated with construction for which there are separate requirements set forth in this regulation, the emission limitation guidelines there specified as applicable to such sources and activities shall be evaluated for compliance with the requirements of Section III.D. of this regulation.

[Cross Reference: Subsections e. and f.  
of Section III.D.2. of this regulation.]

(iv) Control Measures and Operating  
Procedures

Control measures or operational procedures to be employed may include, but are not necessarily limited to, planting vegetation cover, providing synthetic cover, watering, chemical stabilization, furrows, compacting, minimizing disturbed area in the winter,

wind breaks and other methods or techniques . . . .

(iii) Ambient Air Quality Standards, 5 CCR 1001-14, Air Quality Regulation A, "Diesel-Powered Vehicle Emission Standards for Visible Pollutants":

- A. No person shall emit or cause to be emitted into the atmosphere from any diesel-powered vehicle any air contaminant, for a period greater than 10 consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 40% opacity, with the exception of Subpart B below.
- B. No person shall emit or cause to be emitted into the atmosphere from any naturally aspirated diesel-powered vehicle of over 8,500 lbs. gross vehicle weight rating operated above 7,000 feet (mean sea level), any air contaminant for a period greater than 10 consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 50% opacity.
- C. Diesel-powered vehicles exceeding these requirements shall be exempt for a period of 10 minutes, if the emissions are a direct result of a cold engine start-up and provided the vehicle is in a stationary position.
- D. This standard shall apply to motor vehicles intended, designed and manufactured primarily for use in carrying passengers or cargo on roads, streets and highways.

(g) General Operations and Maintenance

The following performance, design or other action-specific ARARs are selected by the Army as relevant and appropriate to this portion of the Interim Action:



(i) 40 C.F.R. § 264.228(b) -- During the closure period for a surface impoundment: (1) the integrity and effectiveness of the final cover shall be maintained; (2) the groundwater monitoring system shall be maintained and monitored; and (3) run-on and run-off shall be prevented from eroding or otherwise damaging the final cover.

(ii) 40 C.F.R. § 264.14 -- General provisions relating to security (including specific warning signs).

(iii) 40 C.F.R. § 264.15 -- General inspection requirements.

(iv) 40 C.F.R. § 264.16 -- Personnel training.

2. Determination of ARAR Impact

(a) Tanks -- Construction and Operation

For this portion of the Interim Action, 40 C.F.R. §§ 264.192, 264.193, 264.194 and 264.195 are relevant and appropriate. The provisions in Section 264.192 have been already attained under the Memorandum of Agreement Between the Army and Shell and the provisions of Section 264.193, 264.194 and 264.195 will be attained by the Army to the maximum extent practicable for this Interim Action of approximately five years duration.

In conformance with 40 C.F.R. § 264.192, there is an adequately designed and installed foundation, structural support, seams, connections (pressure controls will not be needed) for the

tanks, the tanks also have sufficient structural strength, compatibility with Basin F liquid and corrosion protection, and the tank systems were properly installed, tested and inspected and ancillary equipment supported and protected.

In conformance with 40 C.F.R. 264.193 a liner will be used as a secondary containment system and the liner will be adequately designed, installed and operated to prevent migration of any liquid from the secondary containment system and will be capable of collecting releases and accumulated liquids until these can be removed. The liner will have the capacity to contain 100 percent of any one of the three 1.3 million gallon tanks, prevent run-on or infiltration of precipitation, contain a 25-year, 24-hour rainfall event, will be free of cracks or gaps and will surround the tanks and ancillary equipment completely.

In conformance with 40 C.F.R. § 264.194, appropriate controls and practices will be used to prevent spills and overflows from the tanks or secondary containment system.

In conformance with 40 C.F.R. § 264.195, a schedule and procedure for daily inspections will be developed and followed.

(b) Waste Pile -- Construction and Operation

For this portion of the Interim Action, 40 C.F.R. §§ 264.251(a), (c), (d), (e) & (f), and 264.254 are relevant and appropriate. These provisions shall be attained to the maximum extent practicable for this Interim Action of approximately five years duration.

In conformance with 40 C.F.R. § 264.251(a), (c), (d), (e) & (f), a liner will be constructed for the waste pile of which will be sufficient to prevent migration into subsurface soil or groundwater, will be constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure, will be placed on a foundation or base capable of providing support to the liner and resistance to pressure gradients, and will be installed to cover all surrounding earth likely to be in contact with the waste or leachate. The liner will also have a leachate collection and removal system which will not exceed 30 cm (one foot) in depth over the liner, will be constructed of materials that are chemically resistant to waste in the pile and the expected leachate, will have sufficient strength and thickness to prevent collapse, and will be designed to function without clogging. In addition, there will be a run-on/run-off system for the waste pile which is designed, installed and operated to control at least the water from a 24-hour, 25-year storm. Collection and holding facilities will be emptied and managed expeditiously after storms. The waste pile will also be covered to prevent wind dispersal of particulate matter.

In conformance with 40 C.F.R. § 264.254, the waste pile will be inspected immediately after construction and installation and will be inspected thereafter weekly and after storms.

(c) Surface Impoundments -- Construction and Operation

For this portion of the Interim Action, 40 C.F.R. §§ 264.221(c), (e) & (f) and 264.226 are relevant and appropriate. These provisions shall be attained to the maximum extent practicable for this Interim Action of approximately five years duration.

In conformance with 40 C.F.R. § 264.221(c), the surface impoundment to collect leachate from the waste pile will have two liners and a leachate collection system. The top liner will be designed and constructed to prevent migration of leachate into the liner. The lower liner will be constructed to prevent migration through the liner.

In conformance with 40 C.F.R. § 264.221(c), the surface impoundment to collect leachate will be designed, constructed, maintained and operated to prevent overtopping.

In conformance with 40 C.F.R. § 264.221(f), the surface impoundment will have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes.

In conformance with 40 C.F.R. § 264.226, the liners and cover systems will be inspected during construction and installation for uniformity, damage and imperfections. Once the surface impoundment is in operation, it will be inspected weekly and after storms.

(d) Evaporation Pond

For this portion of the Interim Action, 40 C.F.R. §§ 261.3(c)(2)(i) and 264.221(d) are relevant and appropriate.

The North Evaporation Pond is intended to contain for a period of approximately one year the precipitation run-off which will accumulate during the recontouring and capping of Basin F. It is also intended to contain decontamination water. This Evaporation Pond will be constructed with a single liner which will have prepared surface of compacted clays and soils.

The Army believes that a single liner for the Evaporation Pond will be more than sufficient in view of the nominal (if any) contamination which is expected to be present in the precipitation run-off and decontamination water. This belief is entirely consistent with 40 C.F.R. § 261.3(c)(2)(i) which provides that precipitation run-off from the storage of hazardous waste is not a hazardous waste. See 45 Fed. Reg. 33096 (1986).

In addition, even if the precipitation run-off is subsequently found to be a hazardous waste, use of a single liner is appropriate for the Evaporation Pond because, in conformance with 40 C.F.R. § 264.221(d), operational practices will be utilized that will prevent the migration into the groundwater of the precipitation run-off and decontamination water. Specifically, all such water will be removed from the Evaporation Pond within approximately one year for treatment. Also in conformance with 40 C.F.R. § 264.221(d), locational characteristics, in the form of soil composition and groundwater depth will prevent the migration of any precipitation run-off or decontamination water into the groundwater within the one year life span of the Pond; in the unlikely event that such migration

did occur, the Arsenal groundwater boundary system will prevent migration to groundwater outside the installation's perimeter.

- (e) Excavation and Removal of Basin F Liner, Sludges, Soils and Remaining Liquid and Recontouring and Capping

For this portion of the Interim Action, 40 C.F.R. §§ 264.13 and 264.228(a) are relevant and appropriate. These provisions shall be attained to the maximum extent practicable for this Interim Action of approximately five years duration.

In conformance with 40 C.F.R. § 264.13, detailed and up-to-date chemical and physical analysis from the RI/FS will be utilized in connection with this Interim Action.

The provisions of 40 C.F.R. § 264.228 will be met to the extent that they are pertinent to this Interim Action. Contaminated liner, soil, absorbed sludge and liquid will be removed from Basin F using best engineering judgment. Basin F will also be capped and recontoured to minimize migration of liquids, to minimize maintenance, to promote drainage, to minimize erosion and to accommodate settling. Basin F will be subject to re-examination and additional remediation (to the degree warranted) as part of the final ROD for the On-Post Operable Unit.

The "land ban" provisions of RCRA Section 3004 are not applicable or relevant and appropriate to untreated hazardous waste moved and stored on-site pursuant to this portion of the CERCLA Interim Action. Such disposal and storage is being undertaken solely pursuant to 42 U.S.C. §§ 9604 and 9606 and thus

is subject to the exception in 42 U.S.C. § 6924(d)(4) for CERCLA response actions taken through November 9, 1988, and thereafter to the exception in 42 U.S.C. § 6924(j) for storage "solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal," since this waste will ultimately be subject to treatment pursuant to the CERCLA On-Post Operable Unit ROD.

(f) General Construction Activities

For this portion of the Interim Action, Colorado Air Pollution Control Commission Regulation No. 1, 5 CCR 1001-3, Parts III(A)(1) & (D)(2)(b) and the Ambient Air Quality Standards, 5 CCR 1001-14, Air Quality Regulation A, are relevant and appropriate.<sup>9</sup> These provisions shall be attained to the maximum extent practicable for this Interim Action.

In conformance with Colorado Air Pollution Control Commission Regulation No. 1, this Interim Action will employ the specified methods for minimizing emissions from fuel burning equipment and construction activities. In conformance with Colorado's Diesel-Powered Vehicle Emission Standards, no diesel motor vehicles associated with this construction shall be operated in a manner that will produce emissions in excess of those specified in these standards.

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<sup>9</sup> While the statutory provisions of the Colorado Noise Abatement Statute, C.R.S. Section 25-12-103(1)-(3), (5), (8), (9) do not constitute ARARs in the absence of promulgation with adequate notice and comment, the Army contemplates that all construction activity associated with this Interim Action will conform to such provisions.

(g) General Operations and Maintenance

For this portion of the Interim Action, 40 C.F.R. §§ 264.14, 264.15, 264.16 and 264.228(b), are relevant and appropriate. These provisions shall be attained to the maximum extent practicable for this Interim Action.

In conformance with 40 C.F.R. § 264.228(b), during the term of this Interim Action the integrity and effectiveness of the Basin F and waste pile caps will be maintained, the existing Arsenal groundwater monitoring system will be maintained and monitored, and run-on and run-off will be prevented from eroding the Basin F and waste pile caps.

In conformance with 40 C.F.R. § 264.14, all additional necessary security precautions (including specific warning signs) will be taken. In conformance with 40 C.F.R. § 264.15, inspections associated with the Interim Action will meet all inspection requirements necessary in addition to those already in effect at the Arsenal. In conformance with 40 C.F.R. § 264.16, all personnel involved in the Interim Action will receive the pertinent new training and supplemental training.

IV. ATTAINMENT OF ARARS TO THE MAXIMUM EXTENT PRACTICABLE

As demonstrated in the preceding part, this Interim Action will attain all applicable or relevant and appropriate ARARs to the maximum extent practicable, consistent with the June 5, 1987 report to the Court. In accordance with EPA's interim



guidance<sup>10</sup>, the Army has exercised its discretion with respect to relevant and appropriate ARARs and selected only those portions of these ARARs that are relevant and appropriate to this Interim Action. The Army shall attain them to the maximum extent practicable for this Interim Action.

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<sup>10</sup> "Interim Guidance on Compliance with Other Applicable or Relevant and Appropriate Requirements," 52 Fed. Reg. 32497.

APPENDIX

DEPARTMENT OF THE ARMY'S SPECIFIC RESPONSES TO THE "POTENTIAL  
STATE ARARS" IDENTIFIED BY THE STATE OF COLORADO

1. NON-CONTROLLING STATUS OF RCRA

In its August 26, 1987 response to the Army's August 24, 1987 request for the preliminary identification of pertinent ARARS, Colorado explained that "the State's position with respect to Basin F is that this is a RCRA unit; therefore, any cleanup activities implemented with respect to Basin F must meet RCRA standards." As the State is aware, it is the United State's position that the Arsenal, including Basin F, is subject to the CERCLA remedial action process presently on-going at the site. In this connection, it is useful to reiterate a portion of Colonel Wallace N. Quintrell's October 14, 1987 letter to David C. Shelton:

Although CDH did issue a modified closure plan for Basin F, the Army has repeatedly explained to CDH that the regulatory justification for RCRA closure of Basin F no longer exists, while at the same time emphasizing that there is no significant substantive difference between the approach advocated in CDH's modified RCRA closure plan and that which is being taken by the Army as a CERCLA interim action for Basin F. In any event, the modified RCRA closure plan has since been effectively superseded by a new, mutually acceptable interim action process for the Arsenal. As you are aware, in a report filed on June 5, 1987 in United States v. Shell Oil Co., Civil Action No. 83-C-2379 (D. Colo.), the United States, the Shell [Oil] Company, and the State of Colorado advised the United States District Court for the District of Colorado (the Court) that they have agreed on 14 interim response actions, including one for Basin F, and

agreed on a process to govern the planning, selection and implementation of such interim response actions, including for Basin F. In these circumstances, the Army's original designation of Basin F as appropriate for RCRA closure jurisdiction has been overtaken by events. Accordingly, the Army is withdrawing, effective this date [i.e., October 14, 1987], the Army's RCRA closure plan (and thereby its application for RCRA closure jurisdiction) for Basin F.

Please let me assure you that, by withdrawing the closure plans, the Army is in no way seeking to avoid its obligation to comply substantively with the State's RCRA requirements. The Army will comply with the substantive provisions of RCRA, the Colorado Hazardous Waste Management Act and Colorado's Hazardous Waste Regulations in accordance with CERCLA Sections 120(i) and 121(d)(92)(A)(i). Pursuant to these and other provisions of CERCLA, the provisions of 10 U.S.C. § 2705(c) (in accordance with which the Technical Review Committee will be established) and the interim response action and RI/FS processes to be filed with and to be enforceable by the Court in United States v. Shell Oil Co., the Army will continue to keep CDH fully informed of all significant cleanup activity at the Arsenal, to consult with CDH at noteworthy milestones in the interim action and RI/FS process, to ensure that all promulgated State requirements are met during the course of the Arsenal cleanup in accordance with Section 121, and to afford CDH a meaningful opportunity to participate in the planning and selection of the remedial action. In the event that the State does not concur in the cleanup actions set forth in any CERCLA final or interim action ROD, it retains its right under CERCLA Section 121(f)(3) to seek judicial review in the Court. In addition, pursuant to Section 121(e)(2), CDH will have the authority to enforce, upon the issuance of a On-Post or Off-Post ROD, any requirements that the cleanup must meet.

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Moreover, by virtue of the 1986 amendments of CERCLA, and the designation of the Arsenal as an NPL site, it is now the Environmental Protection Agency (EPA) which is the ultimate decision-maker for the cleanup of the Arsenal. Accordingly, the Army will carry out all interim and final response actions at this site in accordance with EPA oversight and approval as well as in compliance with all of CERCLA's other provisions, including those governing State participation.

2. STATE'S IDENTIFICATION OF "POTENTIAL STATE ARARS"

As part of its August 26, 1987 response, the State included a copy of an earlier forwarded "list of the applicable or relevant and appropriate on-post and off-post standards, requirements, limitations or criteria for the Rocky Mountain Arsenal."<sup>1</sup> Through this list, the State identified all "potential State ARARS". As such, many of those identified were not more stringent than comparable Federal provisions and were, therefore, not ARARS. In addition, many did not bear any relationship to the Basin F Interim Action.

Nonetheless, the Army has reviewed all of the "potential State ARARS" identified by Colorado irrespective of whether these are pertinent to the Basin F Interim Action. The results of this review are provided in the following subsections (i) through (xxx):

(i) Enforcement Provisions

The State listed numerous enforcement provisions as ARARS for this interim action. See e.g., C.R.S. Sections 30-20-

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<sup>1</sup> The list provided on August 26 duplicated the list provided by letter of January 7, 1987 from Thomas P. Looby to Colonel Wallace N. Quintrell.

113 (Enforcement-Civil Penalties); 30-20-114 (Violation-Penalty); 25-15-110 (Site Deemed Public Nuisance - When); 25-15-211 (Violation-Criminal Penalties); 25-15-212 (Violation-Civil Penalties); 25-15-308 (Prohibited Acts-Enforcement); 25-15-309 (Civil Penalties); 25-15-310 (Criminal Penalties); 25-8-601 (Division To Be Notified Of Suspected Violations And Accidental Discharges-Penalty); 25-8-605 (Cease And Desist Orders); 25-8-606 (Clean-Up Order); 25-8-607 (Restraining Order And Injunction); 25-8-608 (Civil Penalties); 25-8-609 (Criminal Pollution Of State Waters-Penalty); 25-1-114 and 25-1-114.1 (Unlawful To Disobey Public Health Laws And Civil Penalties); 25-1-107(x)(III)(B) (Warrants For Inspection); 25-7-115 (Enforcement); 25-7-121 (Injunctions); 25-7-122 (Civil Penalties); 25-12-104 (Action To Abate); 25-12-105 (Violation Of Injunction-Penalty); 33-6-103 (Prosecution Of Offenses); 33-6-104 (Imposition Of Penalty-Procedures); 33-6-106 (Suspension Of License Privileges); and 33-6-107 (Licensing Violations-Penalties).

These enforcement provisions are not standards, requirements, criteria or limitations under State environmental or facility siting laws that are legally applicable to the hazardous substances, pollutants or contaminants of concern or relevant and appropriate under the circumstances of the release or threatened release of such hazardous substance or pollutant or contaminant, as required by Section 121(d)(2)(A)(ii) of CERCLA. Rather, these provisions provide the mechanisms by which State regulatory agencies may enforce what may be substantive

environmental or facility siting laws that, in turn, may be ARARs, depending on the context.

Accordingly, these enforcement provisions identified by the State received no consideration as potential State ARARs in the context of this Interim Action.

(ii) Permitting Requirements

The State listed several permitting requirements or requirements for information submittals, notification, monitoring, fees, data collection, and data reporting contained within such permitting requirements as ARARs for this Interim Action. See e.g., C.R.S. Sections 30-20-102 (Unlawful To Operate Site And Facility Without Certificate Of Designation); 30-20-103 (Application For Certificate); 25-15-202 (Application For Certificate); 25-8-501(3) & (5) (Permits-When Required For Discharge Of Pollutants); 25-8-503(1) (Permits-When Required And When Prohibited); 25-8-502 (Application-Definitions-Fees-Water Quality Control Fund); 25-7-114 (Air Pollution Emission Notices And Emission Permits And Implementing Regulations.) See also 6 CCR 1007-3 Part 100.

Section 121(e)(1) of CERCLA, 42 U.S.C. 9621(e)(1), expressly provides that "[n]o Federal, state or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with this section." Since the Basin F Interim Action will be conducted entirely on the Army On-Post CERCLA site and will be selected and carried out in

compliance with CERCLA, the permitting provisions identified by the State received no consideration as potential State ARARs in this context. Provisions for information submittals, notifications, fees and data reporting which relate to these permit provisions also are not substantive requirements of promulgated State environmental or facility siting laws and accordingly received no consideration as potential State ARARs in the context of this Interim Action.

(iii) Legislative Declarations

Declarations of legislative intent do not constitute promulgated substantive requirements of State environmental or facility siting laws as provided in CERCLA Section 121(d)(2)(A)(ii), 42 U.S.C. § 9621(d)(2)(A)(ii), and accordingly received no consideration as potential State ARARs in the context of this Interim Action.

(iv) Colorado Solid Waste Disposal Sites and Facilities Act, C.R.S. Sections 30-20-101 to 30-20-118

The above-cited statute contains no promulgated substantive standards. In addition, this Interim Action does not contemplate the final deposit or final disposal of solid wastes within the meaning of these sections. By its terms, this action is only "interim" in nature.

(v) Colorado Hazardous Waste Act, C.R.S. Sections 25-15-101 through 25-25-313

The above-cited statute contains no promulgated substantive standards.

(vi) Colorado Solid Wastes Disposal Sites and

Facilities Regulations, 6 CCR 1007-2, Sections 1.1 to 7.3

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action.<sup>2</sup> In this regard, it should be noted that 6 CCR 1007-2 does not define "solid waste" to include "hazardous waste." Cf. Section 1.2(rr) with 1.2(t). This is in marked contrast to 6 CCR 1007-3, Section 261.2 and 261.3 which describe "hazardous waste" to be a type of solid waste. (The lack of applicability, relevance or appropriateness of the first part of 6 CCR 1007-2 on solid waste sites to "hazardous waste sites" is underscored by the State's need to provide a separate treatment for the latter type of sites in the second part of 6 CCR 1007-2.)

(vii) Rules and Regulations Pertaining to Solid and Hazardous Wastes, Part 2, Requirements for Siting of Hazardous Waste Disposal Sites, 6 CCR 1007-2, Sections 2.1 to 2.9

These rules and regulations are not applicable because they pertain only to disposal sites which are subject to the permit requirements of RCRA, and no such permit requirements apply to this CERCLA on-site Interim Action. These rules and regulations also contain no relevant and appropriate promulgated substantive standards that are more stringent than relevant and appropriate Federal standards, requirements, criteria or limitations.

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<sup>2</sup> Moreover, even if these regulations were arguably relevant and appropriate, none are more stringent than the relevant and appropriate Federal standards, requirements, criteria or limitations



- (viii) Colorado Hazardous Waste Regulations 6 CCR 1007-3, Parts 260 to 267, 99 and 100

Parts 260 through 265 and 267 are not applicable because these sections pertain only to disposal sites which are subject to the permit requirements of RCRA and no such permit requirements apply to this CERCLA on-site Interim Action. These regulations also contain no relevant and appropriate substantive standards that are more stringent than those which appear in 40 C.F.R. Parts 260 through 265 and 267.

Colorado Hazardous Waste Regulations Parts 266 (Colorado Financial Requirements), 99 (Notification Of Handling Hazardous Waste) and 100 (Permit Regulations) are not substantive standards that are applicable or relevant and appropriate to this Interim Action. See subsection (ii) above.

- (ix) Colorado Water Quality Control Act, C.R.S. Sections 25-8-501 to 25-8-612

The above-cited statute contains no promulgated substantive standards. In addition, no discharge of pollutants through point sources or non-point sources to Colorado waters is contemplated as part of this Interim Action.

- (x) State Discharge Permit System Regulations, 5 CCR 1002-2, Sections 6.1.0 to 6.18.0

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. See subsection (ii) above.

- (xi) Effluent Limitations, 5 CCR 1002-3, Sections 10.1.1 to 10.1.7

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate. No discharge of pollutants through point sources or non-point sources to Colorado waters is contemplated as part of this Interim Action.

- (xii) Sewage and Storm Sewers, 5 CCR 1002-7, Sections 5.1.0 to 5.1.2

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate. No discharge of wastewater to storm sewers or prohibited connections is contemplated as part of this Interim Action.

- (xiii) Basic Standards and Methodologies 5 CCR 1002-8, Sections 3.1.1 to 3.11.9

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate. No discharge into Colorado waters is contemplated as part of this Interim Action, and this Interim Action also does not address remediation of surface water or the underlying aquifer.

- (xiv) Site Applications for Domestic Wastewater Treatment Works, 5 CCR 1002-12, Sections 2.2.1 to 2.2.7

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate. No construction of domestic wastewater treatment works is contemplated as part of this Interim Action.

- (xv) Colorado Safe Drinking Water Authorities, C.R.S. Sections 25-1-107 (x) (y), 25-1-114 and 25-1-114.1

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate. No

action relative to drinking water is contemplated as part of this Interim Action.

- (xvi) Colorado Primary Drinking Water Regulations, 5 CCR 1003-1, Articles 1, 2, 4-8

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate. No drinking water is to be supplied as part of this Interim Action.

- (xvii) Colorado Air Quality Control Act, C.R.S. Sections 25-7-101 to 25-7-505

The above-cited statute contains no promulgated substantive standards.

- (xviii) Colorado Air Quality Control Regulations and Ambient Air Quality Standards

- (a) Common Provisions Regulation

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action, except for portions of definitions which apply to the otherwise applicable or relevant and appropriate substantive provisions addressed in Part III(C) of the body of this document.

- (b) Regulation No. 1, 5 CCR 1001-3, Emission Control Regulations for Particulates, Smokes, Carbon Monoxide and Sulfur Oxides

This regulation contains no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action except for those portions of the regulation that relate to fuel burning equipment and construction activities (each of which are addressed in Part III(C) of the body of this document).

- (c) Regulation No. 2, 5 CCR 1001-2, Odor Emissions

This regulation contains no promulgated substantive standards under a State environmental or facility siting law that are applicable or relevant and appropriate to this Interim Action. Nevertheless, the pug mill to contain contaminant emissions (discussed in Part III(A) of the body of this document) will have the collateral benefit of eliminating or greatly diminishing odor emissions from this Interim Action.

- (d) Regulation No. 3, 5 CCR 1001-5, Air Contaminant Emission Notices, Emission Permits and Fees, PSD Regulations

The provisions for notices, emission permits and fees are not promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. See also subsection (ii) above.

- (e) Regulation No. 6, 5 CCR 1001-8, Standards of Performance for New Stationary Sources: Part A, Sections I, III, IX and XIII; Part B, Sections I, II and IV

Part A, Sections I (General Provisions), III (Incinerators), IX (Storage Of Petroleum Liquids), XIII (Sewage Treatment Plants) and Part B, Sections I (General Provisions), II (New Fuel Burning Equipment) And IV (New Sources Of Sulfur Dioxide) are not promulgated substantive standards that are applicable or relevant and appropriate to any aspect of this Interim Action.

- (f) Regulation No. 7, 5 CCR 100-7, Regulation to Control Emissions of Volatile Organic Compounds

This regulation is not applicable or relevant and appropriate because laboratory analysis of Basin F liquid fails

to indicate the current presence of any volatile organic compounds. The volatiles originally contained in Basin F liquid apparently have evaporated.

(g) Regulation No. 8, 5 CCR 1001-10, The Control of Hazardous Air Pollutants

This regulation contains no promulgated substantive standards that are applicable or relevant and appropriate to any of the chemicals which are the subject of this Interim Action.

(h) Ambient Air Quality Standards, 5 CCR 1001-14

These regulations are generally not applicable or relevant and appropriate here because this Interim Action will not result in the release of sulfur dioxide, oxidant (ozone), carbon monoxide or carbon monoxide in the Eisenhower Tunnel, nitrogen dioxide, nitrogen dioxide, particulate matter into the Pueblo 3C Urbanized Area, and motor vehicles in model years 1968 through 1979. To the extent that, during the course of this Interim Action, there may be emissions from diesel-powered vehicles, this is discussed in Part III(C)(1)(e) of the body of this document.

(xix) Colorado Noise Abatement Statute, C.R.S. Sections 25-12-101 to 25-12-108

The above-cited statute contains no promulgated substantive standards.

(xx) Wildlife, C.R.S. Sections 33-1-101 to 33-1-120

The above-cited statute contains no promulgated substantive standards.

(xxi) Nongame and Endangered Species Conservation Act C.R.S. Sections 33-2-101 to 33-2-108

The above-cited statute contains no promulgated substantive standards.

(xxii) Wildlife Enforcement and Penalties, C.R.S.  
Sections 33-6-101 to 33-6-130

The above-cited statute contains no promulgated substantive standards. See also subsection (i) above.

(xxiii) Colorado Ground Water Management Act, C.R.S.  
Sections 37-90-101 to 37-90-141

The above-cited statute contains no promulgated substantive standards.

(xxiv) The Water Well and Pump Installation Contractors Act, C.R.S. Sections 37-91-101 to 37-91-112

The above-cited statute contains no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. In addition, no water wells or pumps are to be installed pursuant to this Interim Action.

(xxv) Water Rights Determination and Administration Act of 1969

The above-cited statute contains no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. In addition, no water rights will be effected by this Interim Action.

(xxvi) Water Well and Pump Installation Contractors Regulations, 2 CCR 402-2

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. No water wells or pumps are to be installed pursuant to this Interim Action.

(xxvii) Well Permit Regulations, 2 CCR 402-4

Contains no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. No wells are to be constructed pursuant to this Interim Action. See also subsection (ii) above.

(xxviii) General Provisions of the Division of Wildlife Regulations, 2 CCR 406-0, Article II (license types and requirements)

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. See also subsection (ii) above.

(xxix) Reservoirs Act, C.R.S. Sections 37-87-101 to 37-87-125

The above-cited statute contains no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. In addition, no reservoirs will be constructed or effected by this Interim Action.

(xxx) Reservoir Dams, 2 CCR 402-1

These regulations contain no promulgated substantive standards that are applicable or relevant and appropriate to this Interim Action. No reservoirs will be constructed or effected by this Interim Action.